Report

on the

Schools of Akron

Made for the Educational Committee of the
Akron Chamber of Commerce

July, 1917

BY

HORACE L. BRITTAIN

Director of the Toronto Bureau of Municipal Research

Assisted by T. L. Hinckley, Chief of Staff

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This Book Contains:

The Report of the Educational Committee of the Akron Chamber of Commerce and Its Recommendations as Unanimously Adopted by the Chamber's Board of Directors, August 27, 1917,

and

The Report of Dr. Horace L. Brittain, Director of the Bureau of Municipal Research, Toronto, Canada, Giving the Results of His Detailed Study of the Public School System of Akron, Ohio, and His Recommendations for Its Improvement and Enlargement.

Educational Committee

W. C. Geer E. D. Fritch J. E. Good

P. W. Litchfield Francis Seiberling

REPORT OF THE EDUCATIONAL COMMITTEE OF THE AKRON CHAMBER OF COMMERCE

The Educational Committee of the Chamber of Commerce was organized in December, 1916, after its appointment by the President of the Chamber, Mr. Crannell Morgan. In view of the interest taken by a large number of the members of the community in the public school affairs, we agreed that the committee should make so complete a study of the school system as to make possible a community program of education. This study and program was undertaken from one fundamental point of view, namely, the welfare of the children of this city. Both the study and the program, we agreed, ought to be made from a thoroughly impersonal standpoint so far as the administrators of the school system were concerned; but from a very human standpoint so far as the children were concerned. We had therefore in mind, what is best for the young people of Akron at the present time, and what the line of growth of the educational system should be, in order that each succeeding group of children be properly educated to fit into its life in this city.

This conception proved to be so large an undertaking that we prevailed upon the Board of Directors of the Chamber of Commerce to permit us to employ expert trained assistants, for we felt that no program could be developed that was not based upon a complete study of the present organization, and also upon a study of other cities, and it was evident that the members of the Committee could not devote the amount of time to this work that would produce a satisfactory report. We therefore employed Dr. Horace L. Brittain who is now Director of the Bureau of Municipal Research, Toronto, Canada. Dr. Brittain is an experienced educator. He is a graduate in Educational Administration of Clark University, Worcester, Massachusetts. In 1913 and 1914 he was Director of the Ohio School Survey and therefore is well known to Ohio people. Dr. Brittain was assisted by his Toronto Chief of Staff, Mr. Thomas L. Hinckley. He is a graduate of the Massachusetts Institute of Technology, is a sanitary engineer, and is a skilled and experienced student of public schools, particularly from the standpoint of buildings and sanitation. He was formerly Director of the Milwaukee Bureau of Municipal Research and made an exhaustive study of the school buildings of that city.

The Committee believes that the education of the children is one of the three fundamental functions delegated by the family to the community. Each family in our early history performed this function for itself, but today that is impossible. And since it has been delegated to the community, it certainly is a poor spirited community that fails to provide adequate facilities for education. Therefore the investigators were instructed to spare no pains in arriving at the best possible program for the children of this community.

The method pursued by Dr. Brittain and Mr. Hinckley is described in the full report which will follow. Briefly, however, they undertook to carry out the spirit of the Committee, to make a thorough and impersonal study of the public schools, obtaining the complete co-operation of the Board of Education and of all people connected with the school organization. It would have been impossible for this study to have been conducted without a great deal of work on the part of teachers, and the Committee wishes to express here to the Board, to the Superintendent, to the principals and to the teachers, its hearty appreciation of the energetic efforts and work done by them. Every record asked for was given, every request for observation and examination of records was freely arranged. Dr. Brittain and Mr. Hinckley came and went through the schools as they wished. They saw with their own eyes, and their report and recommendations are wholly uninfluenced by anyone within or without the organization. As a result there has been prepared by Dr. Brittain, a complete report involving many pages of text, and many tables with a number of photographs and other illustrative material. This report will shortly be placed in the hands of the printer and will be available for public distribution. The members of the Committee have visited many schools, and have held many meetings and are thoroughly familiar with the report. We endorse it and unanimously recommend it to the members of the community. At the present time the Committee wishes to summarize the important features of this report so that the community may know immediately its more important findings while the full document is in press.

From all this study we wish to call attention in summary form, to three fundamental topics which will be discussed in the order mentioned: First, The things that are well done in the Akron Schools; Second, The recommendations of the Educational Committee; and Third, The course the Committee believes should be pursued in order that these recommendations may be adopted.

1. **The things that are well done in the Akron Schools.** It would be impossible in this place for us to point out all the things in the Akron Schools which are worthy of favorable comment, but several are striking enough to warrant emphasis and the community should know of them.

(a) **Automatic Student Administration.** Each child is trained to lead the recitations and it is an inspiring sight to see the self-confidence and precision with which little boys and girls assume charge of classes. This is briefly the automatic student administration and is an unusually splendid plan. In this respect the Akron Schools are in advance of most other communities.

The study-recitation is a plan by which the teacher and children study together. The child is taught how to study—a feature woefully lacking in most schools.

These two features of the Akron Schools are of peculiar educational value, and are found in such highly developed form in but few systems. The children of the Akron Schools

are trained from the beginning to think and to express themselves on their feet freely. This means that they are trained to be independent in their thinking and speaking, and not at all the parrots that one finds so frequently in public schools. One could discuss this feature at length, for it is fundamental in all grades, and we believe that it gives to the boys and girls of this city a training that is of unusual value.

(b) **The Teachers' Loyalty.** It is clear that the teachers are loyal to the schools and to its officers, and that they work hard and for the benefit of the children. In the full report one may see what makes up the teacher's day, and we doubt if there is in this country any more hard working, enthusiastic body of teachers than is found in the Akron Schools. They may make mistakes, as everyone does, but the mistakes are not of intent and are not part of the system, but are rather the same type of individual mistakes that we all make in our own daily work. It speaks well for the City of Akron that it has so excellent a body of public school teachers.

(c) **Individual Instruction.** The amount of individual instruction given to children who need it more than others, is high. This means that the teachers and principals give much personal care to each child so that the system may not grind out children as though through a machine, but rather that each individual child may have as great a degree of attention as his particular individuality may demand. The chief handicaps—and they are great—are due to the rapid growth of the city, and because of that to the difficulty on the part of the teacher in becoming acquainted with new children. It is obvious that when a child goes through the entire school system in a community, the amount of personal attention he may receive will be greater and will do him more good than when he drops into the school system with habits formed in another city.

(d) **Educational Records.** The report has considerable to say regarding school records, but the educational records of the city are very good; and in particular it is worth noting that a record is kept of each child from his entrance into the schools, continuously through them, and from these records each succeeding teacher may learn of the characteristics of each child in a way so that the teacher may build upon the work of each previous teacher. These records are kept permanently, and it would be a splendid thing if assistance enough were provided to permit a follow-up of children far enough into their subsequent life to assist them in making the most of it. The educational systems of this country—school and college—are as a rule weak in this important phase of educational affairs, and there are too many children who fail to make the most out of their after life on account of the fact that the school or college to which they intrust their education does not keep in touch with them in their after life.

2. **The Recommendations of the Educational Committee.** The recommendations of the Educational Committee are largely in the nature of additions needed to bring the school system into a condition that will permit each child to make the most of its life in Akron. Times have changed. Akron has grown, and our school system is lacking primarily in the fact that it has not added to its activities those features necessary to readjust the schools to the changed community.

(a) **Reorganization of the Board of Education.** It is felt that the Board of Education is over-organized. It is recommended that all standing committees be abolished—that special questions requiring investigation be referred to temporary committees expected to report directly to the full Board; that administrative details be left to responsible executives who should be controlled through the full Board; that no matters of policy be discussed in informal committee meetings; and that the Board be reduced in number to five (5), and all members be elected at large. The reduction in number of the Board cannot be accomplished until 1920, but plans should be made immediately to accomplish it at that time.

(b) **Purchase of Supplies.** The purchase of school supplies is so large an item of cost, that we recommend that the Board of Education adopt definite written specifications for supplies, including coal, and have all materials purchased on a competitive basis according to these specifications in co-operation with the Municipal University and the City Testing Laboratory.

(c) **Reorganization of the Supervisory Force.** The supervision of the schools in Akron is excellent so far as it goes, but it is done at the expense of the personal health of the supervisors and at the expense of the necessary expansion of the educational activities into new lines. There is probably no body of executives in any organization in Akron spending more time and energy in supervision than the Superintendent and principals of the Akron Schools. On account, however, of the growth of the schools—the rate of which will be seen in the full report—these supervisory officers are greatly overloaded with work and responsibility and as a result many school activities are carried on through regulation and formal control rather than by co-operation through consultation between Superintendent, Supervisors, Principals and Teachers. It is difficult to successfully conduct a large industrial enterprise with an organization on the plans of the present public school organization. There must be, of course, one superintendent primarily responsible for policy, but under him should be three (3) or four (4) high-grade, responsible assistant superintendents. Surely a school system involving 22,000 children and 600 teachers and which expends $650,000 per year, with a bonded debt of $1,175,000, is warranted in following the best administrative practice of industrial establishments employing 22,000 hands.

It is, therefore, recommended that the Superintendent of Schools be given three (3) Assistant Superintendents responsible to him: a male Assistant Superintendent of Schools responsible for the supervision of instruction in the grammar grades; a female Assistant Superintendent of Schools responsible for supervision of instruction in the primary grades; and a male Assistant Superintendent responsible for the supervision of instruction of all special school activities and community center work; and an adequate staff of supervisors in special subjects not now fully developed in our school system.

(d) **Building Program.** There is at present insufficient recognition of differences between the needs of various districts in the city, and of the growing legitimate demand for community center work in schools, and vocational instruction. It is recommended that each district in Akron be provided with the following school plant and equipment:—Auditorium large enough for the uses of the adult and child population of the district; play-grounds of at least five (5) acres; manual training and domestic science equipment sufficient for every pupil in grades 7 and 8, for all children of the age of 12 or over in the lower grades, and for summer classes; swimming pools sufficient for such adults and children as care to use them; club-rooms for student and adult clubs in music, art, debating, etc. These last may be provided easily by the use of movable school furniture in such rooms as may be set apart for this work. It is further recommended that in selected congested districts the junior high school form of organization with six (6) grades in the elementary schools, three (3) grades in the junior high school, and three (3) in the senior high school, be adopted. The new junior high school building required should be provided with all the equipment and plant described above.

On one page of the full report is outlined a plan of group units around a central administration building. This is particularly recommended for self-contained semi-suburban communities within the city area.

In connection with the above-mentioned building program, we recommend that more attention be paid to organized playgrounds. The school grounds of Akron are, as a whole, deficient in playground apparatus, and are not used to any appreciable extent outside of school hours and on Saturdays for organized play under supervision. Akron cannot afford to longer neglect this avenue of physical and moral education, and these playgrounds and the use of them should be as much a public school system function as any other portion of its work.

(e) **Ventilation.** Eighteen schools in Akron, including four rural schools, have fairly satisfactory heating and ventilating plants. No schools have adequate apparatus for the humidifying of the air. This is a serious fault leading to decreased

working power of pupils and teachers, and predisposing them to throat and respiratory troubles. The smoke and dust nuisances are not properly dealt with. In many class rooms the air is dirty, as is evidenced by carefully made tests and by large soot flares about the hot-air intakes in many of the class rooms. The fresh-air intakes are, in at least nineteen (19) instances, placed too near the ground level, and no appliances were observed for washing the air. The temperature of the air in the school rooms fluctuates considerably, and in many cases excessive temperatures were observed and reported by teachers.

We recommend that steps should be taken at once to install adequate humidifying apparatus in all schools, and to improve the quality of the air by raising the level of the intakes; and when necessary installing washing devices. The latter would be unnecessary in any district if the pollution of the air in Akron were prevented at its source. This is the only thoroughly satisfactory method of dealing with the smoke nuisance. Therefore, the Committee believes that steps should be taken by the community to insist upon the proper use of smoke consumers in all our industrial plants, commercial buildings and building construction work.

In all buildings to be constructed each class room should have at least two (2) inlets, and in existing buildings where dead air in pockets is observed, electric fans should be installed.

(f) **Physical Education.** The physical exercises in the public schools are well conducted so far as they go, but do not go nearly far enough. We have mentioned playgrounds above, but believe that there should be enough gymnasiums fully equipped with apparatus and shower baths, and under adequate trained supervision, so that every child going through the Akron school system could have a thorough physical development through supervised indoor and outdoor exercise. A healthy mind requires large muscles, and the future of city life will depend upon the proper muscular training of the children.

(g) **Manual Training.** As mentioned above, manual training for boys and the domestic arts training for girls, should be provided for all children in the seventh and eighth grades, for the children of all grades from the age of twelve (12) up, and for children of all ages who show special aptitude.

(h) **Community Center Work.** The investment of the community in its school system should be used for all ages of the community in proportion to their needs and desires. A school should be not only available, but as recommended above, there should be an Assistant Superintendent whose prime duty would be to see that activities were encouraged, properly organized and carried on. All kinds of social activities, lectures on science, hygiene and public questions, the dis-

cussion of civic affairs, may be made under proper planning and supervision the means of public education and may lead the members of the community to higher ideals.

(i) **Night School Work.** Not only night school work for the adult, but continuation classes for the young people, should be provided at any hour of the day or night consistent with good judgment, and to accord with the industrial organization of the community in a way so that any individual who so desires may pursue his education at the same time that he is earning his living. With particular reference to the teaching of English to the aliens, the activities of which were, up to the last year, conducted wholly by agencies outside of the Board of Education, and during the past year were paid for by the Chamber of Commerce, it is recommended that this night school instruction be taken over completely as a large and important function of the Board of Education—that it be developed in a way to provide English for the aliens, night school instruction for the day workers, part time day instruction, and co-operative vocational courses which should be developed to the highest possible degree and co-ordinated with the proposed community center work under the direction of the recommended special Assistant Superintendent. So long as the state admits the alien, surely it should see that he is educated to a degree that qualifies him for American citizenship.

(j) **Records and Publicity.** The accounts of the Board of Education are neatly kept and are sufficient to meet the requirements of the law and to protect the schools against peculation. They are, however, on a cash basis only, and cannot be used therefore for determining the actual operating costs for the year, much less month by month. They are entirely inadequate for administrative purposes. While the accounts of the Board are audited by state authorities every two years, there has been no independent audit by private accountants since 1913. It is urgently recommended that an independent audit of the accounts be made at an early date, and that in co-operation with the state authorities a system of accounting be installed which will show the actual costs in total and unit form, of every type of school function and main objects of expenditure. It is also recommended that the accounts of all students' organizations or funds under student control, be kept by the commercial departments of the high schools, and that regular financial statements thereon be published. The publicity given to school affairs and records should be greater than at present. The absence of printed statistical, financial and descriptive reports is a grave obstacle to the ease of administration of the schools and to the understanding of the school situation by the people who pay the bills. Printed annual reports should be issued giving educational and financial information, and a consolidated quarterly statement along the same line should be

issued for the use of the Board and the public press. This full frank publicity would give strength to the Board in the conduct of its work, not only from the standpoint of the data available, but through the knowledge placed thereby at the disposal of the community.

(k) **Teachers' Salaries.** A thorough study of the salary schedule could not be made with the time at our disposal, but enough work was done to warrant the judgment that the salary schedule of the Akron schools is inadequate and such as to subject the system to competition of neighboring and larger cities for the best teachers. The rate of pay in the city must depend largely on the amount necessary to support teachers at suitable standards of living. Prices have so increased and Akron has grown so rapidly, that a scientific schedule cannot be drafted without a thorough local inquiry. It is recommended, therefore, that a joint committee from the Board of Education, Superintendent, Principals, Teachers and various citizens' organizations, be formed to make the necessary studies and formulate a new salary schedule.

(l) **The Platoon System.** The Committee is not in favor of any two-platoon system in which each group of children is taught different subjects by different teachers each of whom is a specialist in his subject. This platoon system has had two main arguments advanced in favor of it: one, the greater use of the school plant; and the other, the larger amount of vocational training given the child. On the former, no satisfactory proof has ever been produced that either capital or current expense is smaller under the platoon than under the original system. This subject is discussed fully in the main report. On the second point, the Committee is certainly in favor, as this report evidences, of all the better forms of vocational training, but we believe that it is wrong for young children to be under the instruction of several different teachers. Each of these teachers naturally places emphasis upon the special subject and the child thereby loses the broad general development that he most needs. Careful consideration has to be given by a teacher to individual peculiarities in a way which only one teacher familiar with all the subjects taught can give and it is far better for the child to have one teacher training him rather than several teachers each teaching a subject or a small group of subjects. This can not be the place to expand this thought, which is done in the full report. There are a few exceptions of special subjects in the upper grades.

(m) **The Shift Plan.** In order to meet the needs of congested districts and the problems involved in unusual conditions of the school plant and equipment, there is given in the full report, in detail, a possible organization of the school consisting of three (3) regular class rooms and one (1) special class room which can be conducted under a shift plan with

great economy of space and with but one teacher for each class without, therefore, specialized teaching. We would recommend to the Board of Education, that they try out in some congested district of Akron, the particular shift plan which is mentioned in the full report.

(n) **Educational Co-operation.** We believe that much gain can be enjoyed by the community if a greater degree of co-operation between the various Akron educational institutions were worked out. The Municipal University, the public school system and the Kent Normal School can get together in a way that will mean improved educational advantages for all, and will give the taxpayer full return for his money. Much has already been accomplished along this line in Akron, and we believe that more is possible.

3. Course to be Pursued Leading to the Adoption of These Recommendations. These recommendations are intended to establish a community program, the adoption of which in full will undoubtedly take several years; many of them, however, can be put into effect immediately. The adoption of the various recommendations mentioned above, and the others mentioned in the main report, undoubtedly lies within the special authority of the Board of Education. They are the officially constituted officers whose prime business it is to care for the public schools. We therefore recommend to them that as rapidly as possible these changes be put into effect. We believe that they are scientifically correct, that they are reasonable, and that they undoubtedly will make for the increased welfare of the children and of the community.

Many of the recommendations cannot be put into effect until the Board of Education has more money to spend. The first thing, therefore, that the Board should do is to employ accounting experts to revamp its accounting system, to let those who pay the bills know where their money is spent and how.

It is recommended that the various clubs and organizations of the city should make this report the subject of numerous meetings in order to become thoroughly posted, and then they should support the Board of Education in carrying out these plans.

Finally, the public school system of Akron needs more money. It is impossible to develop the school system in a way that will give the children of Akron what they need without larger expenditures for plant and larger expenditures for current expenses. The Smith one per cent law is the handicap against which the cities of this state in vain attempt to conduct their necessary affairs. We recommend that the various organizations of this community get together immediately in a city league, for the purpose of taking concerted action to secure such amendments to the Smith one per cent law as will enable the citizens of Akron to give the financial support to the schools they are willing to give, and to remove all competition for funds between the Board of Education and the other city activities.

In order that our Board of Education as well as other municipal boards of education and municipal governments in Ohio may be able to get permanent relief from the present archaic and short-sighted regulations imposed on them by the General Assembly, it is recommended that concerted action be taken in the cities and larger counties by initiative petitions for the purpose of placing on the ballot at the next state election a constitutional amendment which shall require that representation in the General Assembly must be based on population. Such petitions must be signed by ten per cent of the electors.

Our cities constitute a majority of our population, but in the legislature their representatives are hopelessly in the minority because of the unfair way in which representation is apportioned. According to the census of 1910, our population was 4,767,121, distributed as follows:

Urban population	2,665,143
Rural population	2,101,978
Difference	563,165

At the present time a much larger proportion of our population lives in the larger communities of the state than in 1910.

The present constitution provides for basing representation on population but it also provides that each county shall have at least one representative, taking the House of Representatives for illustration. After providing that it shall require a population of 47,671 in the larger counties to elect a representative, it proceeds to give a representative to each of sixty-five counties not one of which has a population of 47,671 and whose average population is but 28,136. The House of Representatives in the next General Assembly will have one hundred and twenty-four members distributed as follows:

No. Counties	Population	Representation
23 Urban	2,938,281	59
65 Rural	1,828,840	65
Difference	1,109,441	Total 124

Although the larger counties outnumber the remainder in population by 1,109,441, they have six less representatives. If the same requirement as to population were applied to the smaller counties as is applied to the larger, they would have thirty-seven representatives instead of sixty-five.

Based on present population the injustice would be still more glaring, for the reason that for several decades past the smaller counties have been steadily decreasing in population while the more populous ones have made remarkable increases, for example:

County	Population, 1900	Population, 1910
Vinton	15,330	13,096
Geauga	14,744	14,670
Pike	18,172	15,723
Carroll	16,811	15,761

County	Population 1900	Population 1910
Morgan	17,905	16,097
Morrow	17,879	16,815
Holmes	19,511	17,909
Summit	71,715	108,258
Cuyahoga	439,120	637,426
Franklin	164,460	221,567
Butler	56,870	70,271
Lucas	153,559	192,728
Mahoning	70,134	116,151
Stark	94,747	122,987

If Vinton county with a population of 13,096 is entitled to one representative, then Summit county with its present population is entitled to fifteen, or based on its 1910 population it is entitled to eight, but as matters stand Vinton has one and Summit has two.

Geauga county has one representative and Cuyahoga has thirteen. But if Geauga county is entitled to one, then Cuyahoga county is entitled to forty-three according to the 1910 census, and sixty based on present population.

It is therefore seen that the legislature is not only controlled by a minority of our population, but by a minority made up of the most backward and least progressive parts of our population. As long as our people permit such an unjust and undemocratic minority rule, the needs and problems of our modern industrial communities will not be intelligently considered or acted upon by our General Assembly. No government can claim to be representative when it is so organized that control of it is vested in a minority. It is time to establish representative government in Ohio.

We believe that the cities of the state should combine with the immediate purpose of so changing the constitution that they would be free from this unfair, illogical handicap. Growing cities like Akron are penalized for their growth. This is a matter of vital concern, and we believe that the people can be trusted not to spend more money than necessary in the education of their children.

The education of the children costs money—but who is there who would not spend his last cent in order that his children might grow up clean, healthy, well educated?

The children of today are citizens of tomorrow, and the best investment that the citizens of today can give their children is the best they know of physical, mental and moral education.

Respectfully submitted,

W. C. Geer
E. D. Fritch
J. E. Good
P. W. Litchfield
Francis Seiberling
Educational Committee.

August 27, 1917.

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PART C—WHAT THE SCHOOL REVENUE BUYS—Cont'd.

LETTER OF TRANSMITTAL

Dr. W. C. Geer,
Chairman, Educational Committee,
Chamber of Commerce,
Akron, Ohio.

Dear Sir:

I beg leave to submit herewith a report on the Public School System of Akron. It covers three main topics:

A. The Raising and Administration of School Funds.
B. The Physical Plant and Equipment.
C. What the School Revenue Buys for the Boys and Girls of Akron.

This report attempts to tell only what was seen by the writer and his co-worker, Mr. Thos. L. Hinckley, to co-ordinate the information supplied by the Board of Education and its employees, and to make such broad constructive suggestions and recommendations as seem warranted by the available facts. No attempt has been made to work out these suggestions and recommendations in minute detail, for four reasons:

1. Details could be developed on the ground only after a prolonged study of conditions such as would be necessary for any one undertaking the administration of the system.
2. Details must change to conform with the needs of the ever changing social organization of a large city.
3. Such recommendations as seem to be based on sound principles having been adopted, the proper persons to develop details would be those already most conversant with the existing situation and who would need to go through the process of working up details in order, later, to administer the system readily and efficiently. Any other procedure would involve duplication and waste of effort.
4. The science of education is not an exact science, and he who would seek to crystallize recommendations into hard and fast forms would be rash indeed.

Throughout, the writer has attempted, first, to describe conditions as he sees them, next, to set forth the evidential data on which he has formed his opinion and, lastly, to make suggestions or recommendations. This was done to assist the reader in following the report and to form his own judgment of its soundness. The building up of a community educational system is fraught with grave responsibility to all those co-operating in the work, and it is hoped, therefore, that the many tables, diagrams and analyses, and other supporting data in the succeeding pages, will not be passed over lightly. All the financial figures, and all the data as to physical measurement were supplied by school authorities. The former were worked over and analyzed carefully in co-operation with the Clerk of the Board, to whose unfailing courtesy the examiners owe much. For the latter the inquiry

is indebted to the Superintendent, the school architect, the principals and the teachers, who gave unstintingly of their time in a very busy season. For the facts also as to the special equipment and activities of the schools, and as to the employment of the teachers' time, we are indebted to the supervising and teaching staff for their courtesy.

In his study of the schools of Akron the writer saw much to admire; but little time has been taken or effort expended to show that Akron has done better or worse than some other particular cities. Almost any city with reasonably efficient schools can find either comfort or discouragement as to its comparative standing. To be satisfied because others have done worse is always dangerous. The true standard of success is the degree with which attainment compares with the possibilities. The real question at issue is, "Can Akron's schools give better service to their community?" This report attempts to answer this question in the light of Akron conditions and of present knowledge.

The fact basis for the discussion of class-room instruction was gathered at first hand by the writer personally. He was granted every courtesy, went where he wished, saw what he desired to see, and was offered no suggestions as to what he should see or how he should see it. In only one case did he return to a school to visit a teacher on the suggestion of an employee of the board.

In order that he might be fully cognizant of the methods being employed by the examiner and the sort of experiences he was having, the Superintendent was present at many of the class exercises observed. This arrangement also gave the examiner an opportunity to observe the nature of the official relations existing between the Superintendent and the teaching force. At other exercises the examiner was the sole observer. It is interesting to note that there was less embarrassment on the part of teachers when both were present than when the examiner was alone. Altogether, this study of the Akron schools has been a delightful experience, and I wish here to thank formally the Board, the Superintendent, the Clerk of the Board, the architect, the principals and teachers for freely given assistance without which this report would not have been possible.

My thanks are also due to Professor Hardgrove of the University for his valuable work on the heating and ventilating tests carried out in co-operation with Mr. Hinckley.

Respectfully submitted,

HORACE L. BRITTAIN.

July 10, 1917.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

Needed Amendments to Smith One Per Cent Law.

The business affairs of the Board of Education have been administered with economy. This economy has been so extreme that necessary elements in a modern educational system—referred to later—have been sacrificed. Owing to the operation of the State tax law the Operating Account is liable to show a deficit of $75,000 at the end of the current school year. Out of 475 elementary school classes on April 20, 1917, 165 had a membership of 45 or over, and 67 of 50 or over. In spite of anything which may properly be done to secure more intensive use of school plant, these conditions of financial stringency and too large classes are bound to grow worse instead of better.

> In view of the growth of the Akron system, the desirability of great extensions of the school work, and the increasing difficulty of securing enough money to meet the current needs of the schools as at present organized, it is urgently recommended that concerted action be taken to secure such amendments of the Smith One Per Cent Law, so called, as will enable the City of Akron to give that financial support to the schools that it is willing to give, and will remove all danger of competition for funds between the Board of Education and the City.

Overlapping of the School and Tax Year.

The tax year and the school year overlap six months. The result is that, with Akron's growing school system, the Board of Education not only has to estimate for a school year but has to guess at the probable expenditures for the next six months. There can be, therefore, no scientific or clear-cut school budget—the prime necessity for financial administration.

> It is recommended that, in conjunction with other Ohio cities, the Legislature be urged to harmonize the tax and the school year at the earliest opportunity.

Bond Issues on the Serial Plan.

Of recent years all school construction has been paid for out of borrowed funds. Bond issues, however, create current liabilities which diminish by so much the margin available for the operation of schools. During the past six years, the current revenue has increased 77.6%, and the portion applicable to interest and repayment of principal has increased 85.9%. The method of repaying borrowed funds now used in Akron, or used until very recently, has aggravated conditions by postponing first repayments of principal beyond the end of the first year and sometimes for over twenty years after the assumption of the liability. No sinking fund has been provided for the bonds not on the serial plan.

It is recommended that in future all bonds be issued on the strictly serial plan, that sinking funds be established at once for those bonds not on the serial plan, and that, as soon as possible after the amendment of the State law, at least part of the cost of construction be paid out of current funds.

Increase in Expenditures.

As nearly as can be determined from available records, during the last decade, salaries of administration have increased 167%, salaries of elementary school teachers 116%, cost of maintenance of plant 386%, and debt charges 121%. Educational salaries have not kept pace with physical costs.

In the interests of the children, investment in bricks and mortar and their upkeep should not be allowed to take precedence over investment in brains.

Per Pupil Costs.

In 1914-1915 the cost per pupil (in average daily attendance) of conducting the schools in 50 cities of over 100,000 was $49.36* according to the 1916 Report of the United States Commissioner of Education. From 1911-1912 to 1915-1916 Akron spent on the average, per pupil, $39.80. In 1915-1916 it spent $42.70.

If Akron provided adequate instruction in Manual Training, Domestic Arts and Physical Training to all the students in her elementary schools, and provided auditoria, gymnasia and swimming pools sufficient to meet her school and community needs, there would not be this disparity in costs.

Building Program.

To complete the present building program of the Board of Education, a supplementary bond issue of over $440,000 will be necessary. This does not provide for necessary structural changes in existing schools. If it is decided to rebuild or partially rebuild the Perkins, Howe, Kent and Spicer Schools—which is desirable—the sum required will be much larger. The old Perkins building constitutes not only a disgrace but a menace to safety.

The Shift Plan.

All this construction will, in any event, be necessary in the near future; but the plant, once constructed, is capable of being made somewhat elastic by the adoption in crowded centers of a longer school day and of a "shift" plan not requiring departmentalization. The reasons for not suggesting a platoon organization, requiring departmentalization throughout, are fully set forth on pages 159 and 160. (For discussion of and diagrams illustrating "shift" plans, see pages 52 to 56 inclusive.)

*This is, of course, based on data not strictly comparable.

Accounting.

The accounts of the Board are neatly kept and are sufficient to meet the requirements of the law and to protect the schools against peculation. They are, however, on a cash basis only and cannot, therefore, be used for determining actual operating costs for the year, much less month by month. Although fund ledgers are kept, there is no true appropriation accounting. The accounts as they are cannot be used as a basis for a scientific budget. For these and other reasons the Board's accounts are entirely inadequate for administrative purposes.

While the accounts of the Board are audited by the State authorities every two years, there has been no independent audit by private accountants since 1913.

Apparently the Board's accounting is not used for purposes of laboratory instruction in the Commercial Courses. Neither, apparently, are accounts of student-controlled funds kept by the various commercial departments of the High Schools. The educational results to the students of keeping their own school accounts in good form and seeing that they get full publicity should not be lost.

It is urgently recommended that an independent audit of the accounts be made at an early date and that, in co-operation with the State authorities, a system of accounting be installed which will show the actual costs, in total and unit form, of every function, type of school, school, and main objects of expenditure. The uniform school accounting system recently adopted by the State of New York provides a model which could readily be modified to meet the needs of Akron and the requirements of the State law. (See pages 71-74.)

It is further suggested that the accounts of the Board be used to give laboratory practice to students in commercial courses under the direction of the accounting officer of the Board in co-operation with the heads of commercial departments.

It is also recommended that the accounts of all student organizations or funds under student control be kept by the commercial departments of the High Schools, and that regular financial statements thereon be printed in the school papers, if any, and finally in the annual report of the Board of Education.

School Reporting.

The absence of printed statistical, financial and descriptive reports was a grave obstacle to the prosecution of this study. It must be a graver obstacle to the ease of administration of the schools and an insuperable obstacle to the understanding of the school situation by the people who pay the bills.

It is recommended that in view of their small cost and great utility, printed annual reports be issued covering the following points:

1. Work accomplished during the year;
2. Steps in advance for the ensuing year;
3. A summary operating account of the previous year;
4. Summarized estimates for the ensuing year;

5. A classified balance sheet;
6. Financial statistics;
7. Educational statistics (for which there is an excellent basis already in existence).

It is further recommended that consolidated quarterly statements along the same lines be issued for the use of the Board and the press. (See pages 174 and 224.)

Over-organization of the Board of Education.

It is felt that the Board of Education is over-organized. In other cities where a similar organization exists it has been found to interfere with the prompt despatch of business or with the proper discussion of important policies in full committee, or with both.

It is recommended:

1. That all standing committees be abolished, or at least reduced to two or three;
2. That when a special question requiring investigation comes up for a decision it be referred to a special temporary committee which will be expected to report fully and will be discontinued on completing its work;
3. That all administrative details be left to responsible executives who should be controlled through regular and special reports;
4. That no matter of policy be discussed in informal committee meetings or otherwise in private;
5. That the Board be reduced in number to five and that all members be elected at large.

Purchasing and Testing of Supplies.

At various times the Board has had materials purchased by it tested in co-operation with the Municipal University.

It is recommended that the Board—after adopting definite standards of service and make-up—have all materials purchased by it, including coal, regularly tested before payment and that the necessary co-operative arrangements for this be established with the Municipal University and the City Testing Laboratory.

Over-size Classes.

Under the prevailing conditions of rapid expansion the Board of Education has been remarkably successful in providing regular class-room accommodation for the children. Only three portable buildings were found in use. This condition, however, has not been brought about without the sacrifice of important elements of school efficiency. Three schools report that they have been compelled to use their gymnasia for kindergarten purposes, while rooms designed for manual training and domestic arts have been occupied by regular classes. Until this year the records show that the average number of children per teacher has not been increasing, but this year a decided increase in the number of over-size classes has occurred.

This constitutes a danger signal. The children of Akron have a right to an all-round education under good conditions of school housing.

The Type and Condition of School Buildings.

The school buildings of Akron are of many types but there has been a progressive improvement. The latest models, such as the Jennings and the Bowen Schools, are satisfactory in most respects although, in the latter, the ceiling of the auditorium is too low, the model flat is not well lighted, and the surrounding conditions are not entirely desirable from the standpoint of health. All the school plants in Akron were scored for location, grounds, structure, heating, ventilation and sanitation. The average total score of the entire system was 70, that of the High Schools 82, that of elementary schools 71.5, and that of country schools 56.5. Outside of the small country schools, the scores varied between 50.5 for the Perkins and 93 for the West High School.

It is recommended that in future no school buildings be erected in Akron which would score less than 90 on the basis used in this study.

The School Grounds.

The school grounds of Akron are, as a whole, deficient in playground apparatus, and not used to any appreciable extent outside of school hours and on Saturdays for organized play under supervision. Akron cannot afford to neglect longer this avenue to physical and moral education.

Repairs to Buildings.

Eight of the school buildings in Akron may be considered as structurally perfect. Twenty-three are not fireproof in the modern sense, although six of these are small schools of the rural or semi-rural type. Sixteen show flaws calling for repairs. The neglect of repairs at the Howe, Kent and Perkins Schools, as they appeared at the time of inspection, can hardly be explained satisfactorily. The fire-escapes on some schools are of such an unsatisfactory type that it appears that orders have been given not to use them except in case of actual fire.

All buildings should be put in a state of good repair at once if only for the educational and moral effect. The fire-escapes should be remodelled so that they can be used safely by children either in fire-drills or in case of actual fire.

Ventilation.

Eighteen schools in Akron, including four rural schools, have fairly satisfactory heating and ventilating plants. No schools have adequate apparatus for the humidifying of the air. This is a serious fault, leading to decreased working power of pupils and teachers and pre-disposing to throat and respiratory troubles. The smoke and dust nuisances are not properly dealt with. In many class-rooms the air is dirty as is evidenced by careful tests and by the large soot-flares about

the hot-air intakes in many classrooms. The fresh-air intakes are, in at least nineteen instances, placed too near the ground level and no appliances were observed for washing the air. The temperature of the air in the school-rooms fluctuates considerably and in many cases excessive temperatures were observed and reported by teachers.

Steps should be taken at once to install adequate humidifying apparatus in all schools and to improve the quality of the air by raising the level of the intakes and, when necessary, installing washing devices. The latter would be unnecessary in any district if the pollution of the air in Akron were prevented at its source. This is the only thoroughly satisfactory method of dealing with the smoke nuisance. Pittsburgh and other cities have recently done much along this line.

In all buildings to be constructed, each class-room should have at least two inlets and two outlets and in existing buildings where dead air in pockets is observed electric fans should be installed.

Sanitary Arrangements.

The Grace School is now the only remaining school in Akron which has outside closets. In only one school building—the Crosby—were toilets and other sanitary arrangements found defective in regard to all four main points of adequacy, type, lighting and air conditions (odors), although the Howe, the Henry, the Perkins and the Bryan score very low.

The Grace School should be provided at once with inside toilets, or outside toilets with proper heating and running water should be installed. All toilet arrangements in other schools should be put into unobjectionable condition.

Lighting.

The lighting of Akron school-rooms is probably their best feature from the standpoint of Hygiene. Three hundred and seventy-three class-rooms, out of 433 reported on, may be regarded as being sufficiently well lighted. The others are practically all in old buildings which will soon be replaced. In all proposed buildings adequate provision is being made. In some of the old buildings class-rooms are lighted from more than one side, but unilateral lighting is now the definite policy of the Board. Akron is to be congratulated on her record in respect to the lighting of school-rooms.

Cloak-rooms.

Only 38 class-rooms have cloak-rooms below the present legal standard. Two hundred and forty-three rooms are provided with cloak-room space inside the class-rooms. This is an economical method of construction and there is no evidence that it is unhygienic. The separate cloak-room is, however, more desirable from the standpoint of aesthetics and probably of ventilation.

It is recommended that in all future construction the separate cloak-room be adopted, and that the experiment be made of putting open grill-work in the bottom of the screens at present used in class-rooms to shut off the cloak-room areas.

Seating Accommodation.

The seating accommodations of the Akron schools are satisfactory according to all accepted standards. Good results are, however, now being obtained elsewhere from the use of movable furniture and

It is recommended that the experiment of using such furniture be tried out in Akron, particularly in certain large class-rooms which might be used as club-rooms and auditoria for community purposes.

Caretaking Service.

The cleaning of school buildings in Akron, with extremely few and minor exceptions is entirely adequate.

It is recommended that time-sheets be kept by all caretakers so that, in connection with an improved accounting system, accurate cleaning costs may be established as a means of caretaking control.

The Type of School Building in Relation to the Extension of Community Center Work.

The type of school building in use in Akron is determined largely by the type of organization which provides for an eight-year elementary course and a four-year high school course, with a five-hour school day, a five-day school week, and a ten-month school year. There is at present insufficient recognition of differences between the needs of various districts in the city, and of the growing and legitimate demand for vocational instruction and community center work in schools.

It is recommended that each district in Akron be provided with the following school plant and equipment:

a—Auditoria large enough for the uses of the adult and child population of the district;

b—Playgrounds of at least five acres in connection with all schools having Grades 7 and 8, or beyond;

c—Manual training and domestic arts equipment sufficient for every pupil in Grades 7 and 8, for all children of the age of 12 or over in the lower grades, and for summer classes;

d—Swimming pools sufficient for such adults and children as care to use them;

e—Club-rooms for student and adult clubs in music, art, debating, etc. (These may be provided easily by the use of movable school furniture.)

It is further recommended that in selected congested districts the Junior High School form of organization—with six grades in the Elementary Schools, three grades in the Junior High School and three in the Senior High School—be tried out, the new Junior High School building required being provided with all the equipment and plant described above.

It is suggested that where new large eight-grade buildings are erected, that Grades 7 and 8 of surrounding overflowing schools be moved to the new building which could then be supplied with

plant and equipment as above described, sufficiently large to supply the whole neighborhood.

On page 120 is outlined a plan of grouped units around a central administration building. This would be particularly suitable for self-contained, semi-suburban communities within the city area.

Finally, it is recommended that a joint conference of the Board of Education and various citizen organizations be instituted to draw up a diversified building program for Akron's schools, based on school and community needs.

The Course of Study.

The theoretical basis of the Course of Study is excellent, giving recognition to the necessity of expression as well as impression, the importance of the motor element in education and of a "rich" school environment.

In the High Schools the theory is well carried out in practice, but, with the exception of the Bowen, the elementary schools have neither the plant nor equipment universally recognized as the sine qua non for modern elementary education. In the new schools about to be constructed, care is being taken to provide the facilities for manual training, domestic arts, gymnasium work, auditorium activities, etc., necessary to provide a many-sided environment, and adequate provision for the all-round development of child life through motor expression.

Within the limits of the present elementary curriculum and with the facilities at present afforded, remarkable scope is being given for the self-expression of children. The course in drawing and art is particularly well developed and in the upper grades has recently been strengthened by the addition of commercial poster work. On page II of the Appendix will be found the schedule in drawing and art for the last semester.

The school exercises in the academic branches fall under two main types: The study-recitation, in which the teacher guides the pupils in the study of advance work, and the recitation proper which, in the majority of cases, is conducted by the pupils without undue interference of the teacher. Where this method has been carried out most intelligently, the results are truly excellent. **The writer has never observed schools where pupils manifested greater facility in oral expression, independence of judgment, ability to think on their feet, and capacity for debate.** In most schools visited the characteristic recitation procedure was not followed slavishly. In one of the best recitations observed, where pupils were given the very best opportunities for co-operation and self-expression, the exercise was nominally under the charge of the teacher who did little more, however, than to stimulate thought and discussion.

Automatic Student Administration.

Automatic student administration, as it is called in Akron, is characteristic of the schools, from the Kindergarten up. In all grades pupils had charge of most of the routine operations of the class-rooms visited, and in the upper grades the greater number of recitations were

conducted by pupils. Of course, great differences between teachers appeared, some allowing the utmost freedom and seldom interfering by word or motion, others securing only the appearance of free action. The stimulating effect upon both pupils and teachers was very evident in many class-rooms.

The Work in Reading.

The work in reading observed was good. The instruction in phonics was particularly excellent.

The Teaching of Geography.

The teaching of geography is, on the whole, excellent. Most class-rooms possess or may readily obtain stereoscopes and stereoscopic views illustrative of geographical topics. Many rooms have small industrial collections. The use of the lantern and ballopticon is increasing. One excellent exercise of this nature was witnessed by the writer. Visits to factories and places illustrating geological formations are features of the work in some schools. Cases were observed, however, where lessons were taught with no material other than that supplied by the text-book, although such was obtainable. (See page 136.)

Every building should have a central school museum illustrative of geography work and class collections should be made each school year. Portable lanterns or ballopticons and, if possible, motion picture machines adapted to school use should be supplied for each building.

The Teaching of History.

The general nature of the teaching of history observed was similar to that of geography. Not so good illustrative material was found in the class-rooms, but the use of supplementary texts did much to brighten the recitations. On the whole, the best examples of pupil recitation were observed in this subject.

The extensive use of projection apparatus would do much to short circuit the history course and make it more interesting and effective.

The Teaching of Arithmetic.

The work in arithmetic was good, but could be improved by the use of more illustrative material and its co-ordination, in upper grades, with manual training and domestic arts. In one school, arithmetic was being taught in a class grocery store.

Physical Exercises.

The physical exercises observed were such as to develop grace and poise. The extensive use of victrolas in physical drill is particularly commendable. Greater vigor in the upper grades is desirable—particularly for boys.

The provision of gymnasia, equipped playgrounds, and shower-baths, will make this possible.

Civics.

The lessons in Civics observed were good; but the best work in citizenship in Akron is being done in the pupils' organizations.

When all school buildings are equipped for community center work and club-rooms for students are available, still better work will be possible. The preparation of a course on "Akron," covering the local geography, history, industry, commerce, church life and social life, and motivated by frequent studies of local environment on the spot, is suggested.

The Teaching of Music.

Nothing but commendation could be given to the teaching of music as observed in the Akron schools. The comparatively extensive equipment of pianos and victrolas makes possible valuable work in musical appreciation. The need of more supervisory assistance was, however, apparent.

The Teaching of Drawing and Art.

The teaching of drawing and art observed in the elementary schools of Akron is of a high order. The course is well conceived and followed out, and is being developed rapidly.

This work can be greatly strengthened when full provision is made for manual training and domestic art. The record of the High Schools is sufficient to prove this. The writer wishes that it were possible in the limits of this report to describe the art work in the High Schools and its co-ordination with domestic art subjects.

The Work in Written and Oral Language.

A great deal of the work in written and oral language observed was good. Oral expression instruction in the lower grades was particularly effective.

The writer believes that greater interest could be given to composition if the emphasis were put not on choosing subjects interesting to children, but on leaving the initiative to the children, after supplying them with a school environment as rich as possible.

Spelling Lessons.

The technique of spelling drill observed was beyond criticism. One excellent study-recitation was observed where the teacher "motivated" the work and treated the subject from the "functional" standpoint. Every lesson is supposed to be a spelling lesson. The impression obtained by the writer was that the work was unnecessarily formal. The minimum spelling list used in Akron is an excellent feature.

The writer believes that better results might be obtained if each spelling lesson were made a language lesson based on the words, these being taken not from spelling lists prepared by others but by lists drawn by the teachers from the working vocabularies of the pupils.

Instruction in the High Schools.

The general character of instruction in the High Schools is similar to that of the elementary schools. Still more developed work in the socialized recitation was possible. Very excellent exercises in English, Modern Languages, Civics, Singing, and Domestic Arts were observed. It is to be hoped that the people of Akron realize the value of their investment in the High Schools and will provide for proportionately equal investments in their elementary schools.

The Class-Room Technique of Teachers.

The teachers of Akron are, on the whole, remarkably free from such errors in class-room technique as talkativeness, loud speaking, repeating questions and answers, asking leading questions, etc. The class work of elementary teachers was particularly noteworthy in this respect.

The Night Schools.

Within their limitations, the night schools of Akron have been doing good work.

It is recommended that night school instruction, day part-time instruction and co-operative vocational courses, similar to those in operation in Fitchburg and Cincinnati, be developed to the highest degree possible and co-ordinated with one another and with the proposed work in community centers under the direction of a special assistant superintendent.

Reorganizing of the Supervisory Force.

The educational, administrative and supervisory officers of the Akron school system are greatly overloaded with work and responsibilities. This, together with the rapid growth of the schools has resulted in the supervision of school activities being carried on through regulations, examinations and methods of formal control rather than by co-operation as a result of consultations between the Superintendent, supervisors, principals and teachers. The system needs more assistant leadership and more points of view. A better balance between the masculine and feminine forces needs to be established. With the introduction of manual training for boys and of Junior High Schools, the proportion of men on the staff would automatically increase. (For further discussion see page 173.)

It is recommended that a supervisory force be built up on lines similar to the following:

1. A Superintendent of Schools;
2. A male Assistant Superintendent of Schools responsible to the Superintendent for the supervision of instruction in the grammar grades;
3. A female Assistant Superintendent responsible to the Superintendent for the supervision of instruction in the primary grades;

4. A male Assistant Superintendent responsible to the Superintendent for the supervision of all special school activities and community center work;
5. An adequate staff of supervisors and special teachers of art work, domestic art, manual training and music.

Educational Records.

The educational records of Akron provide the basis necessary for educational control. Years in advance of most cities, Akron established individual record cards for children. For years the Superintendent has made semi-annual studies of over-age and its causes, based on these records.

It is recommended that at least once each year studies be made of retardation—or progress through the schools at a rate slower than normal—and its causes. It is further recommended that as a basis for follow-up work individual records of children, resident in Akron, who leave school before completing the High School be kept until they reach the age of 20. This will be necessary for the highest success of night schools, continuation courses, and co-operative courses.

Promotions.

The percentage of promotion in Akron schools is high, varying from 89% to 96% in the different schools. Rather unusual facilities for individual instruction of children are provided in Akron (see page 198). As classes are cut down in size, more facilities are provided for individual instruction and promotion by subject becomes the rule, this percentage will still further increase. The schools of Akron are greatly handicapped by the rapid growth of the city and the migratory school population. About 44% of the present school population started school elsewhere.

Retardation and Over-age.

The standards for measuring retardation and over-age in Akron have always been high. In applying these standards in this study it became apparent that, of the children whose whole school records were in the hands of the teachers, 37.6% were over-age and 33.23% were retarded. A considerable part of the over-age was due to late entrance. The figure for retardation is therefore more significant. The writer believes that, considering the unique disadvantages under which Akron schools labor, as pointed out above, the record with regard to the rate of progress through the schools is excellent. (For a discussion of promotions throughout the year, see page 182.)

The record can be improved by

a—Cutting down the size of classes;

b—Classifying pupils more finely as to ability;

c—Providing more frequent promotion periods;

d—Promotion by subjects, as far as possible.

Dropping Out of School.

During the first half of the academic year, 103 children dropped out of school before completing the school course. It is probable that during the year 300 or 400 are thus eliminated. Some statistics seem to indicate that the proportion is much larger. It is probably true that not over 20% who enter school in Akron graduate from the High School. This is extremely high when compared with the facts for the country as a whole. (See page 197.) It is a serious community loss when a child leaves school without completing the elementary school course.

It is recommended that all over-age children—who are particularly liable to drop out of school—be given pre-vocational instruction after reaching the age of twelve, irrespective of what grades they may be in. This will involve the provision of manual training, etc., for every complete elementary school in the city. It is further recommended that an intensive study of elimination, its causes and amount, be conducted in the Akron schools.

Medical Inspection.

The medical inspection of children in Akron schools now administered by the Board of Health is good, and improving. The facilities provided are, on the whole, satisfactory. The open-air classes—conducted by the Board of Education—are thoroughly well organized. The work with sub-normal and retarded children is on a particularly good basis, as the Board of Health provides a specialist in feeble-mindedness, and as the school principals are experienced in giving the Binet-Simon tests.

Working Day of Principals and Teachers.

The average working school day of principals in Akron is at least 7.9 hours long and that of the teachers, 7.8 hours long. No "slackers" were observed during the class-room inspection.

Teachers' Training.

The teachers of Akron are exceptionally well trained. Of 576 teachers listed, all but 10 were High School graduates, all had High School training of which only 2 had less than three years. Fifteen teachers had four years professional training; 12, three years; 280, two years; 115, one year; 29, less than one year; and 125, none. Of the last mentioned, 64 were High School principals or teachers. Fourteen per cent of the teachers now on the staff were trained in Akron. One hundred and fifteen have had at least some training in colleges or universities.

The Salary Schedule.

The salary schedule of the Akron schools is such as to subject the system to the competition of neighboring and larger systems for the best teachers. The rate of pay in a city must depend largely on the wage necessary to support teachers at a suitable standard of living.

Prices have so increased and Akron has grown so rapidly that a scientific schedule cannot be drafted without a thorough local inquiry similar to the one just completed in Evanston by Acting Superintendent Farmer and a committee of teachers.

It is recommended that a joint committee from the Board of Education, the Superintendent, the principals, teachers and various citizen organizations, be formed to make the necessary studies and formulate a tentative schedule of salaries.

Incompleteness of School Equipment and its Relation to Community Center Work.

Within the period of their use, the various school plants are used intensively. With the exception of the High Schools and an elementary school, none are equipped for intensive use outside of regular school hours. The absence of this equipment lessens the efficiency of instruction in the regular academic school subjects.

Both for the use of regular day pupils and for community uses after school hours, on holidays, and in vacation, every large school building in Akron should have:

a—An auditorium;

b—An equipped playground;

c—A gymnasium;

d—Shower baths;

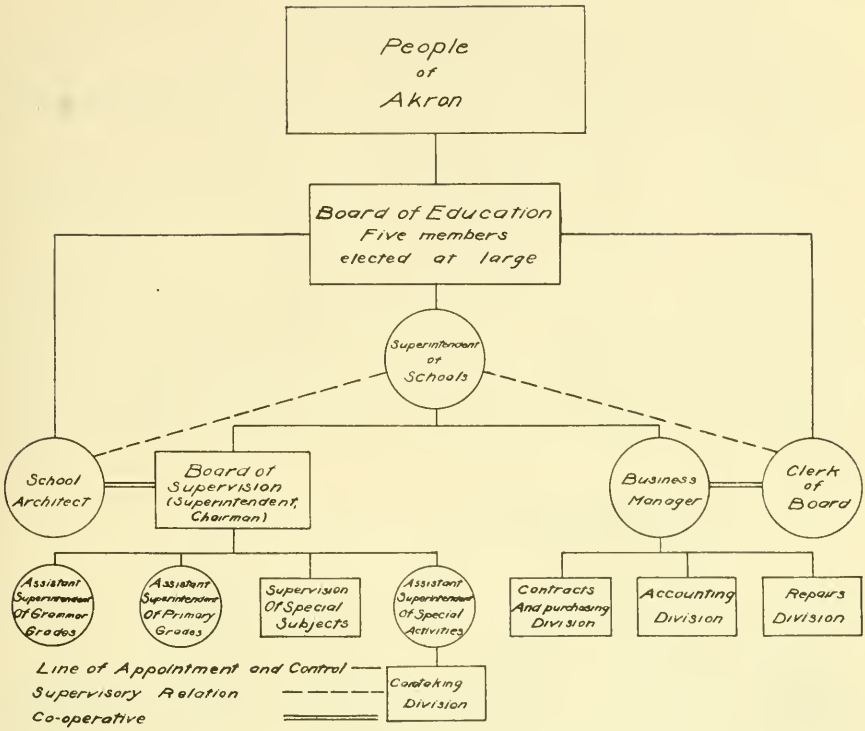
e—A swimming pool;

f—Rooms and equipment for pre-vocational and vocational instruction;

g—Several rooms provided with movable furniture for the use of club-rooms.

All school-buildings so equipped should, wherever there is sufficient demand, be used for community centers, where citizens could meet to pursue common interests in organizations formed by themselves.

The following is a suggestion as to type of organization:



Community Center Work in Relation to School Reporting.

As is fully set forth on page 224, some schools have done much to establish relations with their constituencies. An enlarged community center program will secure for all schools the sympathy and respect, based on knowledge and comradeship in worth-while activities, which is so necessary for the highest success of the schools. This constitutes the highest type of school reporting—every citizen his own reporter.

PART A
THE RAISING AND ADMINISTRATION OF SCHOOL FUNDS

A DESCRIPTION OF METHODS WITH CONSTRUCTIVE CRITICISMS AND SUGGESTIONS

The question of prime importance with regard to the schools is not "How much do they cost?" but "What is their product?" Inasmuch, however, as the methods of raising, expending and administering school funds have a direct bearing on the school product and as, under existing conditions, large expenditures are necessary before any sort of school is possible, the financial and business administration of the schools is considered first. This will be treated under three main heads:

I. General Financial Facts
II. Financial Methods
III. Business Administration

I. GENERAL FINANCIAL FACTS

1. Sources of School Funds.

The Akron Board of Education derives its funds applicable to operating expenses from taxation, state funds and various miscellaneous sources. Bond issues provide the funds for all, or practically all, capital outlay—new buildings, school sites, etc. Before 1913, some capital funds were raised by taxation, but the restrictions imposed by the State tax laws have since made this impossible. This is felt to be desirable in an undertaking not carried on for profit. **The payment of at least a considerable part of the Board's capital obligations out of current funds would be in the line of conservative financing.** During the past ten years the Board of Education has issued bonds to the amount of $1,707,000—$875,000 of which was authorized by public vote. (See page 66 repayment of borrowed funds.)

As in the case of the other cities of Ohio, the Akron School System has no true annual budget on the basis of estimated available revenue and estimated expenditures for one year. Inasmuch as the tax year runs from March to March and the school year from September to September, the revenue year does not correspond to the expenditure year, nor the supply of cash with the needs for cash. Owing to this overlapping, the school budget, if it may be so called, is in reality the estimated net cost of the twelve-month school year plus the estimated cost of the next six months—at the end of which an instalment of taxes will be due—minus the cash balance on hand. Largely on account of budget confusion, an inordinate amount of time was consumed in getting at the financial facts for this study. The budget, at present, can be of little value for detailed financial control or other administrative purposes.

It is recommended that concerted action, in co-operation with the other cities of the State, through the various Boards of Education, Chambers of Commerce and other citizen agencies, be taken at once to secure State legislation to bring the tax year into conformity with the school financial year.

It is unnecessary to discuss here the method of distributing the funds received from the State or the nature of the various miscellaneous revenues.

2. Increase of Current Revenue and Funds Applicable to Capital Outlay.

Revenue from taxation exceeds all other forms. During the past ten years taxes have furnished 88.6% of all revenues and at present amount to over $600,000 per year. State funds have contributed 7.7% and miscellaneous revenues have amounted to 3.7% of the total current revenue from the decade. Following is Table I, illustrated by graphic charts:

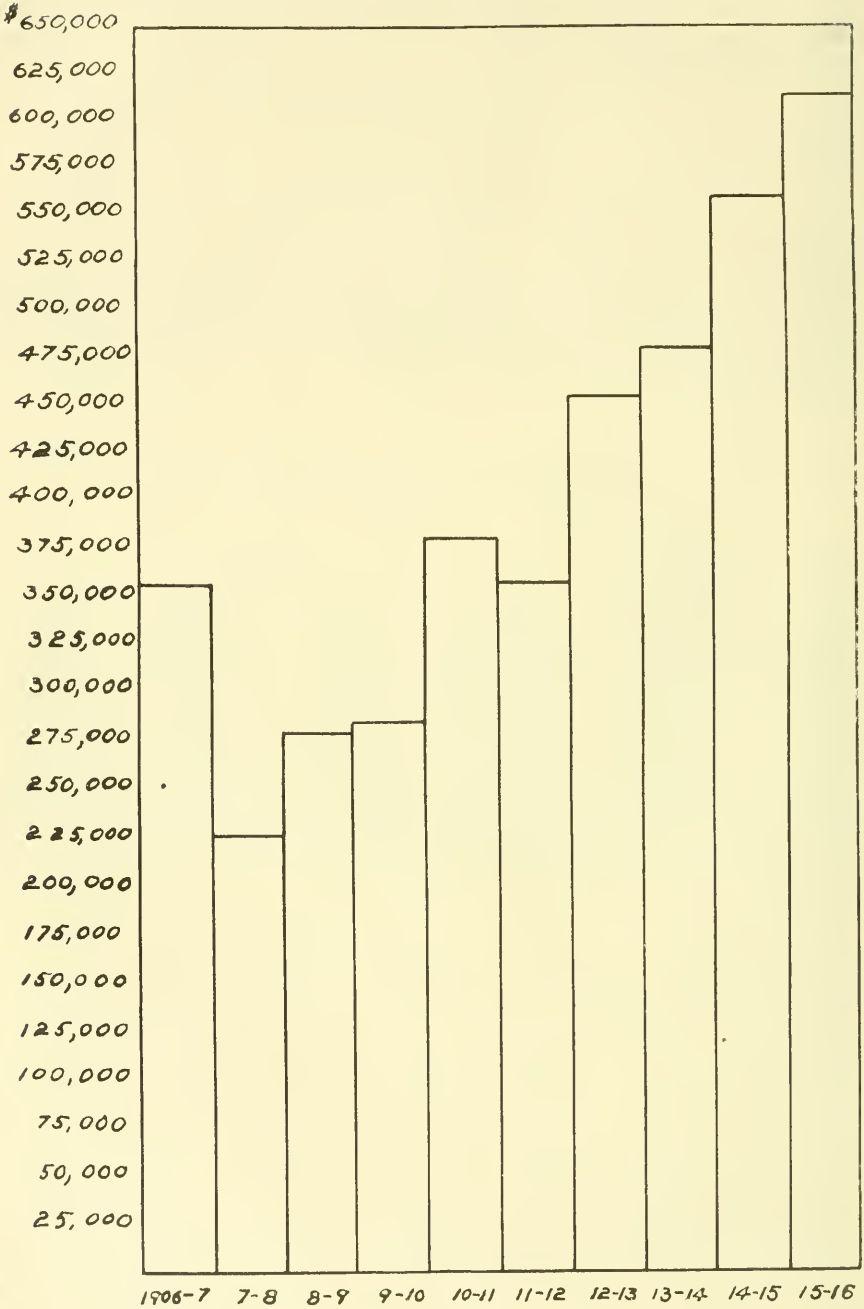
TABLE I.

COMPARATIVE TOTAL RECEIPTS

For the ten years 1906-1907 to 1915-1916, Inclusive.

Year	Total Revenue Receipts Applicable to Current Expense	Taxes	State Funds	Miscellaneous Sources	Bond Sales
1906-7	$ 397,498.22	$ 356,859.54	$ 34,245.25	$ 6,393.43	$ 50,114.00
1907-8	262,395.85	226,298.91	27,128.52	8,968.42	None
1908-9	320,990.76	278,280.88	26,845.99	15,863.89	65,396.35
1909-10	329,292.95	284,486.10	29,124.54	15,682.31	200,000.00
1910-11	422,054.05	381,390.96	31,544.60	9,118.49	55,019.40
1911-12	401,918.12	356,129.04	34,309.84	11,479.24	63,447.00
1912-13	514,046.19	454,802.23	37,213.23	22,030.73	485,244.90
1913-14	540,214.74	480,790.79	40,068.54	19,335.41	212,165.67
1914-15	623,160.27	560,459.14	42,632.54	20,068.59	34,867.94
1915-16	692,339.28	612,731.78	42,879.64	36,727.86	512,170.70
	$4,503,910.43	$3,992,229.37	$345,992.69	$165,688.37	$1,678,425.96

Receipts from Taxation from 1906-7 to 1915-16.



Receipts from Bond Sales from 1906-7 to 1915-16.

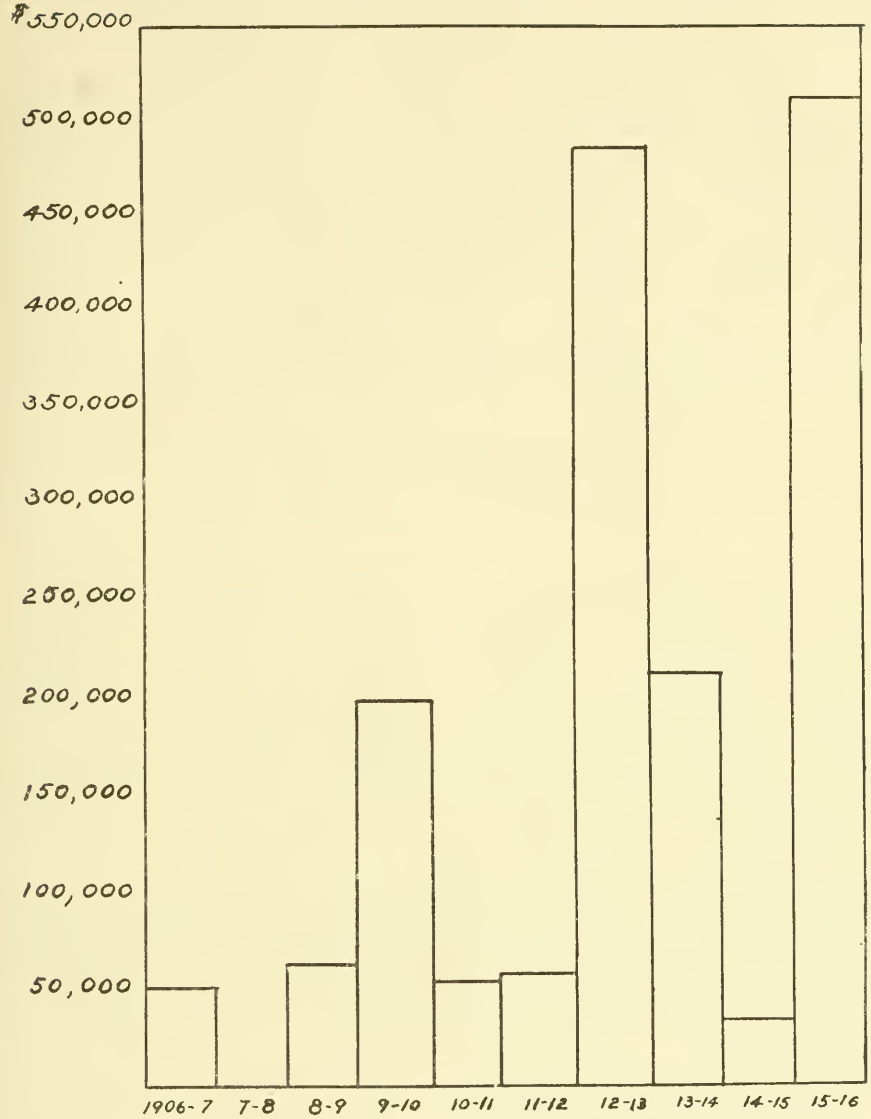


Table II, which follows, indicates that in six years the total current revenue has increased 77.6%, but that the portion applicable to interest and the repayment of debt has increased 85.9%. This is a serious condition. The fact that the building fund has increased 521%, and that it has, since 1913, consisted entirely of borrowed funds indicates that the financial situation is bound to become still more serious. On page 67 it is made clear that debt repayments have been postponed in many

cases, so that the percentage of the total revenue applicable to debt charges is not as large as it should have been in the interests of safe financing. This is indirectly another result of the Smith One Per Cent Law and, if allowed to persist, can result only in bankruptcy.

These facts should have been currently reported to the taxpayers in such persistent and striking ways as to command attention. Too early a beginning cannot be made on such a campaign as a basis for a statewide agitation for bare justice to the cities of the State which are badly in need of a large measure of autonomy in local taxation. If the people are willing and able to tax themselves for schools and municipal services, why should the State object? To curtail powers of taxation and leave, undiminished, the power of borrowing invites financial disaster. To curtail both invites educational disaster. The best curtailment of either is provided by the common sense of the people who pay the bills. Paying the bills will produce the necessary common sense if it does not already exist.

TABLE II.

CLASSIFIED FUND RECEIPTS

For the six years 1910-1911 to 1915-1916, Inclusive.

Year	Total Current Receipts	APPLICABLE TO CURRENT EXPENSE			APPLICABLE TO PERMANENT OUTLAY
		Tuition Fund	Contingent Fund	Bonds and Interest*	Building Fund
1910-11	$ 396,647.48	$ 254,022.66	$ 79,040.16	$ 63,584.66	$ 80,426.07
1911-12	390,224.35	265.389.02	95,007.69	29,827.64	85,140.77
1912-13	498,637.23	290,603.04	156,615.06	51,419.13	501,653.86
1913-14	541,225.01	332,723.74	134,327.22	74,174.05	211,155.47
1914-15	658,028.21	416,271.96	168,356.73	73,399.52	None
1915-16	704,369.50	420,519.13	165,594.86	118,255.51	500,176.53
	$3,189,131.78	$1,979,529.55	$798,941.72	$410,660.51	$1,378,552.70

* Includes premiums from sale of bonds.

3. How School Revenues are Limited by State Legislation.

No attempt will be made here to explain the Smith One Per Cent Law. This should be superfluous in any city in the State now groaning under its artificial restrictions. Let it suffice to state that the Law places a limit of 5 mills upon all taxes for school purposes raised during any fiscal year unless the people, by special election, authorize an additional levy. In no case, however, can the combined budgets of the various corporations concerned exceed 15 mills, so that neither the city nor the schools may receive the full benefit of the theoretical maximum available for either. This, of course, is liable to cause and, in many places, actually does cause competition for funds between cities and boards of education—an exceedingly undesirable state of affairs.

During the five years previous to 1916-1917 the schools received $590,309.04 less than the theoretical maximum, and, if 1916-1917 be included, the theoretical deficiency would amount to $764,874.64.

Table III which follows gives a summary of the facts:

TABLE III.

ACTUAL AND MAXIMUM RECEIPTS FROM TAXATION.*

Year	Actual Tax Rate	Maximum Tax Rate	Difference	Total School Duplicate	Difference
1911-12	4.4 Mills	5.0 Mills	0.6 Mills	$ 81,795.250.00	$ 49,077.15
1912-13	4.9 Mills	5.8 Mills	0.9 Mills	94,122,280.00	84,710.15
1913-14	4.6 Mills	5.8 Mills	1.2 Mills	105,828,780.00	126,994.54
1914-15	4.8 Mills	6.0 Mills	1.2 Mills	119,118,990.00	142,942.79
1915-16	4.6 Mills	6.0 Mills	1.4 Mills	133,274,580.00	186,584.41
Theoretical deficiency in tax receipts					$590,309.04

* For 1916-1917 the difference is 1.2 mills, equivalent to $174,565.60 in taxes.

According to the provisions of the State law, State funds will increase with the city's growth. Miscellaneous receipts probably will also. But these together form a small part of the revenue.

There need be no fear apparently as to the sufficiency of bond issues as the Board may issue bonds each year to an amount equal to two mills on the school duplicate and the Akron public seems favorable to necessary school extension.

4. How School Revenues and Capital Funds are Spent.

As in most cities, the classification of school expenses in the Akron schools is entirely inadequate for administrative purposes. Moreover, the actual distribution has varied from year to year. Hence it is absolutely impossible to give here any data as to the cost of school functions and only approximately correct data of general functions and objects of expenditure. The figures in Table IV which follows indicate that salaries and wages account for 63.2% of the current expenses; maintenance of plant, for 24.2%; and debt charges for 12.6%, for a ten-year period. The capital expenditures average $167,-816.50.

Thus, Salaries of Administration have increased 167%; Elementary School Salaries, 116%; Cost of Maintenance and Plant, 386%; Debt Charges, 121%. The significant fact here is that educational salaries have not kept pace with physical costs. Brains should not be allowed to suffer in comparison with bricks and mortar and their upkeep.

TABLE IV.

COMPARATIVE TOTAL DISBURSEMENTS

For the ten years 1906-1907 to 1915-1916, Inclusive.

Year	Total Disbursements on Current Account	SALARIES OF STAFF			Maintenance and Operation*	Debt Charges	Permanent Outlays
		Administration†	Elementary Schools	High Schools			
1906-7	$ 239,955.12	$ 12,525.00	$ 120,129.38	$ 24,172.75	$ 57,807.49	$ 25,320.50	$ 90,891.72
1907-8	267,542.63	13,287.50	126,699.58	33,880.74	64,413.97	29,260.84	37,839.67
1908-9	282,403.88	13,375.00	130,309.51	38,947.25	68,184.87	31,587.25	85,629.51
1909-10	306,878.14	16,774.99	141,326.39	44,804.76	77,216.50	26,755.50	91,159.75
1910-11	326,814.53	15,000.00	149,887.02	48,731.78	73,801.23	39,394.50	176,833.71
1911-12	362,702.04	15,736.87	156,785.15	60,046.89	99,038.96	31,094.17	94,270.52
1912-13	444,295.86	20,087.50	181,438.07	70,442.36	121,600.43	50,727.50	312.549.23
1913-14	521,444.46	31,750.00	202,451.98	77,756.38	142,366.10	67,120.00	379,582.14
1914-15	608,433.69	37,300.00	235,578.60	104,520.25	137,429.64	93,605.20	73,554.71
1915-16	648,777.89	33,350.00	259,725.55	117,523.02	128,024.32	110,155.00	335,854.05
	$4,009,248.24	$209,186.86	$1,704,331.23	$620,826.18	$969,883.51	$505,020.46	$1,678,165.01

† Supervising Principals and Teachers, all schools.

* Salaries of clerical and technical staff are included.

Below is a graph showing the percentage increases in these costs compared with percentage increase in average attendance.

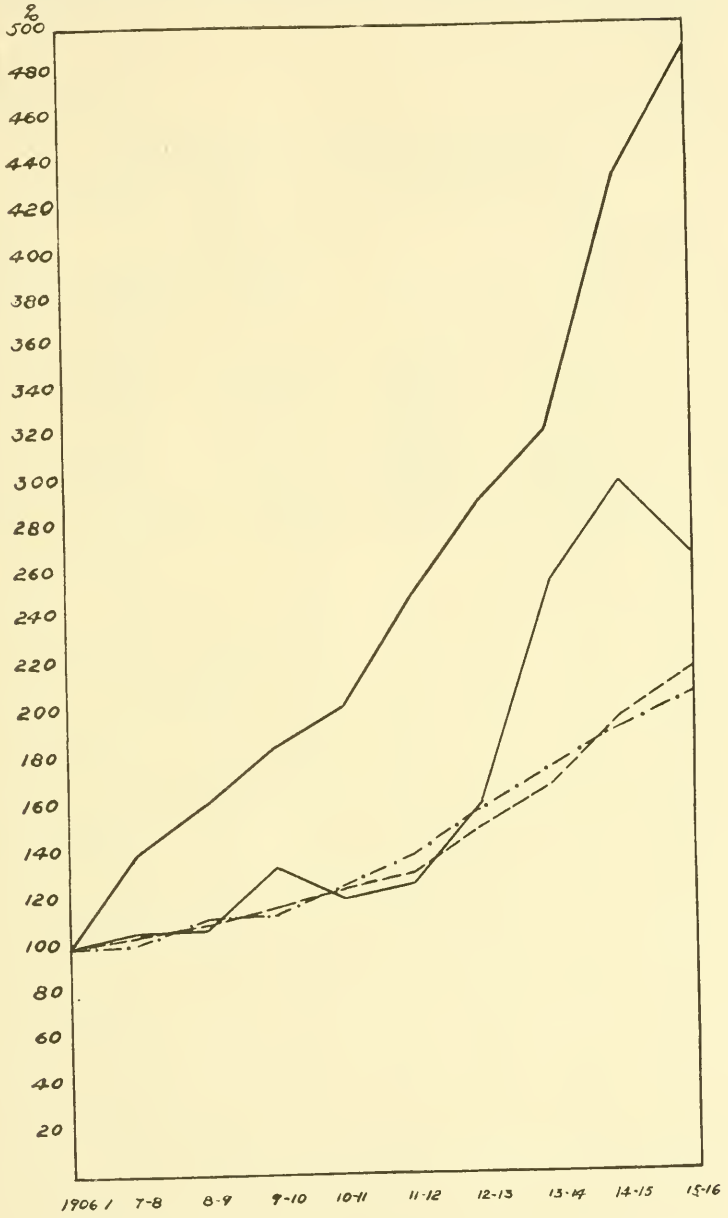


Table V which follows shows the variation in the disbursements from the various funds for a period of six years. The two charts illustrate the main points.

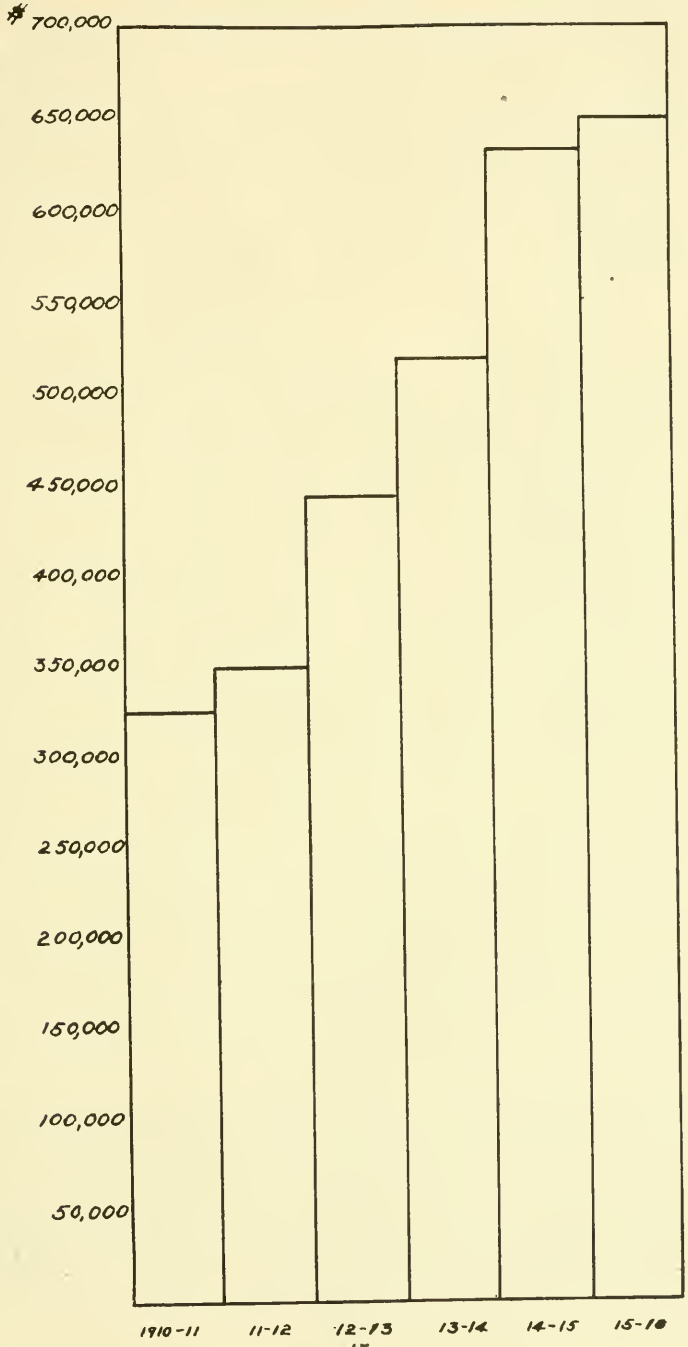
TABLE V.

CLASSIFIED FUND DISBURSEMENTS

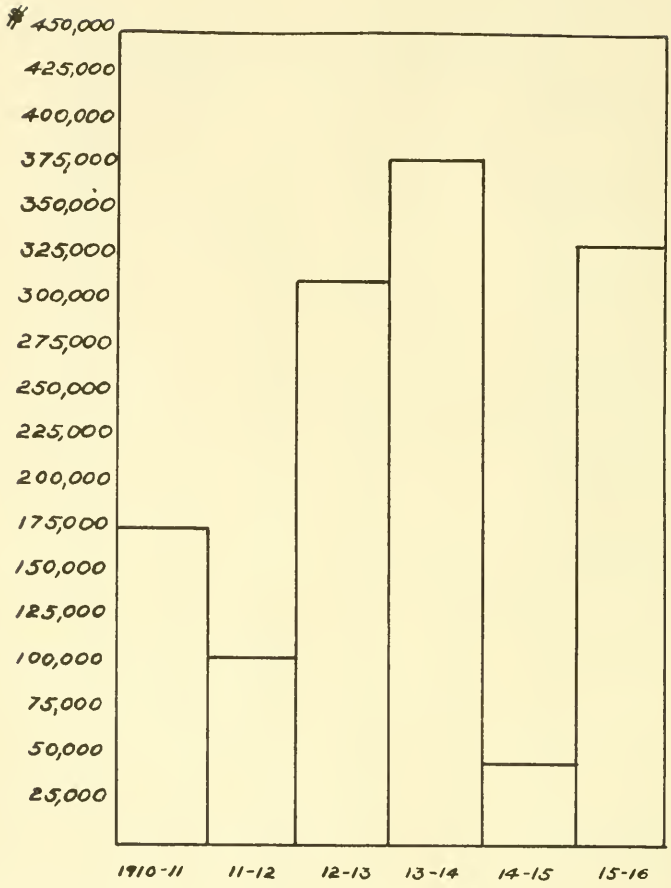
For the six years 1910-1911 to 1915-1916, Inclusive.

Year	Total Disbursements on Current Account	FOR CURRENT EXPENSES			FOR PERMANENT OUTLAY
		Tuition Fund	Contingent Fund	Bonds and Interest	Building Fund
1910-11	$ 326,814.63	$ 213,618.80	$ 73,801.23	$ 39,394.60	$ 176,833.71
1911-12	352,702.04	232,568.91	99,038.96	21,094.17	104,270.52
1912-13	444,295.86	271,967.93	121,600.43	50,727.50	312,549.23
1913-14	521,444.46	311,958.36	142,366.10	67,120.00	379,582.14
1914-15	634,713.20	381,398.85	164,768.45	88,545.90	47,275.20
1915-16	651,919.97	415,598.57	136,166.40	100,155.00	332,748.02
	$2,931,890.16	$1,827,111.42	$737,741.57	$367,037.17	$1,353,258.82

Disbursements on Current Account from 1910-11 to 1915-16.



Disbursements from Building Fund
from 1910-11 to 1915-16.



The cost per pupil in average daily attendance for the six years 1911-1912 to 1915-1916 based on the figures in Table V and Table VI (below) was $39.80. The per pupil cost for 1915-1916 was $42.70. The average cost for 50 cities, each having over 100,000 population, according to the 1917 report of the United States Commissioner of Education, was $49.36. Taking into consideration the proximity of Akron to a much larger center of population with which there is more or less competition for teachers, direct or indirect, Akron costs are certainly moderate.

TABLE VI.

Year	Average Attendance
1916-1917 (½ year)	19,090
1915-1916	15,268
1914-1915	14,176
1913-1914	13,004
1912-1913	11,640
1911-1912	10,269
1910-1911	9,266
1909-1910	8,189
1908-1909	8,163
1907-1908	7,519
1906-1907	7,401

5. Condition of School Funds.

As one might expect from the foregoing description, the condition of at least some of the four legal funds—tuition, for the payment of teachers' salaries; contingent, for the payment of other operating expenses; bond and interest, for taking care of debt requirements; building, the capital fund—must be approaching an undesirable condition. This is particularly true of the tuition and the contingent funds. Interest and instalments must be provided for, although, as indicated above and later, repayments of capital have in many cases been postponed beyond the date of issue of the bonds concerned, so that indebtedness cannot but increase faster than the rate of repayment. If this fund were scientifically sound, the tuition and contingent funds would be in a worse condition than they are. As before stated, the building fund is now raised entirely by borrowing and, as the two-mill limit of the law seems to be ample, there is no present likelihood of embarrassment here unless the population increases faster than the duplicate or citizens change their attitude toward school expenditures.

Tables VII-A to VII-D and Table VIII indicate that the balances in the four funds have slightly but steadily increased each year. The balance in the building fund, of course, simply means that the buildings for which the bonds were issued were not constructed. In the most important fund, however—the tuition fund—the annual surplus has declined from over $40,000 in 1910-1911 to less than $5,000 in 1915-1916. **This is a very narrow margin. Should the receipts and disbursements for the year 1916-1917 agree with the estimates prepared by the School Clerk, there will be a deficit in this fund on operation account, for the year, of over $50,000,** reducing the accumulated balance by that amount. In a similar way, if the official estimates hold good, the August, 1916, balance in the contingent fund of over $95,000 will be reduced to about $55,000, showing a net deficit for the year of $40,000. The bond and interest fund alone, of the three current expense funds, shows an increased balance of about $18,000. The combined balances will have been reduced from $403,018.98 on August 31, 1916, to $327,758.08 on August 31, 1917. There would be an actual cash deficiency—as there will be an actual operating deficit of $75,000—if the year had not started with a balance. **In spite of the rigid**

curtailment of expenditures of the Board, even in directions seriously affecting the efficiency of the schools, the State tax restrictions are getting in their deadly work and, if present conditions continue, will produce an impossible situation.

TABLE VII-A.

STATUS OF TUITION FUND

For the six years 1910-1911 to 1915-1916, Inclusive.

Year	Receipts During the Year	Expenditures During the Year	Surplus of Receipts over Disbursements	Balance at End of Year
1910-11	$ 254,022.66	$ 213,618.80	$ 40,403.86	$138,215.90*
1911-12	265,389.02	232,568.91	32,820.11	171,036.01
1912-13	290,603.04	271,967.93	18,635.11	189,671.12
1913-14	332,723.74	311,958.36	20,765.38	210,436.50
1914-15	416,271.96	381,398.85	34,873.11	245,309.61
1915-16	420,519.13	415,598.57	4,920.56	250,230.17
	$1,979,529.55	$1,827,111.42	$152,418.13	

* Includes balance from 1909-10 of $97,812.04.

TABLE VII-B.

STATUS OF CONTINGENT FUND

For the six years 1910-1911 to 1915-1916, Inclusive.

Year	Receipts During the Year	Expenditures During the Year	Surplus of Receipts over Disbursements	Balance at End of Year
1910-11	$ 79,040.16	$ 73,801.23	$ 5,238.93	$39,091.65*
1911-12	95,007.69	99,038.96	4,031.27x	35,060.38
1912-13	156,615.06	121,600.43	35,014.63	70,075.01
1913-14	134,327.22	142,366.10	8,038.88x	62,036.13
1914-15	168,356.73	164,768.45	3,588.28	65,624.41
1915-16	165,594.86	136,166.40	29,428.46	95,052.87
	$798,941.72	$737,741.57	$61,200.15	

* Includes balance from 1909-10 of $33,852.72.
x Deficit.

TABLE VII-C.

STATUS OF BONDS AND INTEREST FUND

For the six years 1910-1911 to 1915-1916, Inclusive.

Year	Receipts During the Year	Expenditures During the Year	Surplus of Receipts over Disbursements	Balance at End of Year
1910-11	$ 63,584.66	$ 39,394.60	$24,190.06	$38,302.66*
1911-12	29,827.64	21,094.17	8,733.47	47,036.13
1912-13	51,419.13	50,727.50	691.63	47,727.76
1913-14	74,174.05	67,120.00	7,054.05	54,781.81
1914-15	73,399.52	88,545.90	15,146.38x	39,635.43
1915-16	118,255.51	100,155.00	18,100.51	57,735.94
	$410,660.51	$367,037.17	$43,623.34	

* Includes balance from 1909-10 of $14,112.60.
x Deficit.

TABLE VII-D.

STATUS OF BUILDING FUND

For the six years 1910-1911 to 1915-1916, Inclusive.

Year	Receipts During the Year	Expenditures During the Year	Surplus of Receipts over Disbursements	Balance at End of Year
1910-11	$ 80,426.07	$ 176,833.71	$ 96,407.64x	$ 45,727.06*
1911-12	85,140.77	104,270.52	19,129.75x	26,597.31
1912-13	501,653.86	312,549.23	189,104.63	215,701.94
1913-14	211,155.47	379,582.14	168,426.67x	47,275.20
1914-15	None	47,275.20	47,275.20x	None
1915-16	500,176.53	332,748.02	167,428.51	167,428.51
	$1,378,552.70	$1,353,258.82	$ 25,293.88	

* Includes balance from 1909-10 of $142,134.70.
x Deficit.

TABLE VIII.

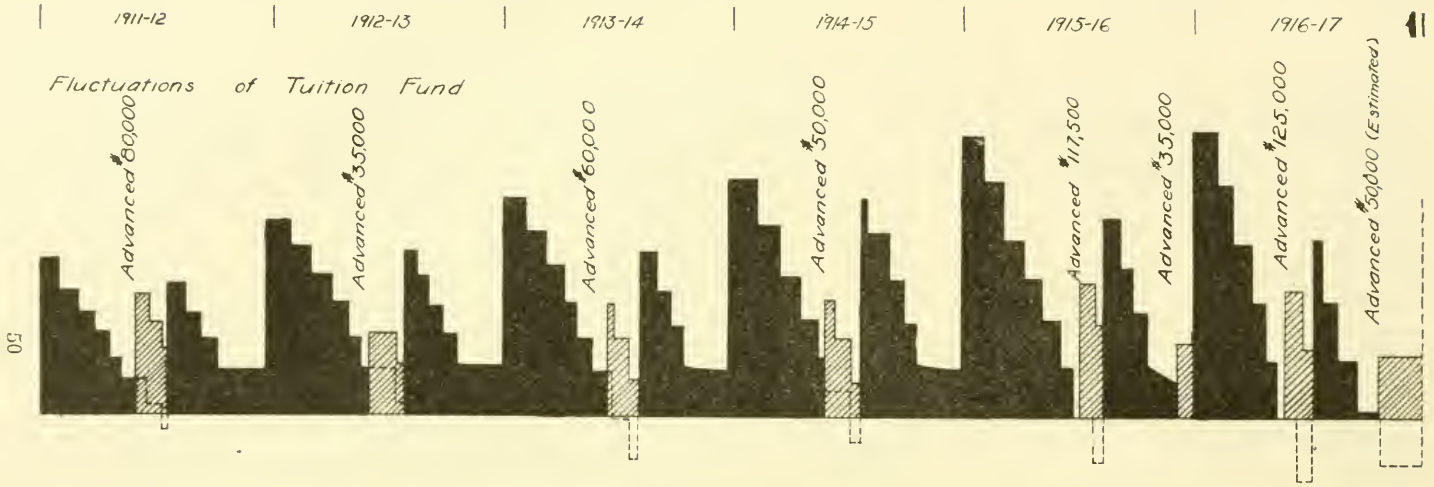
ESTIMATE OF UNEXPENDED BALANCES FOR 1916-1917.

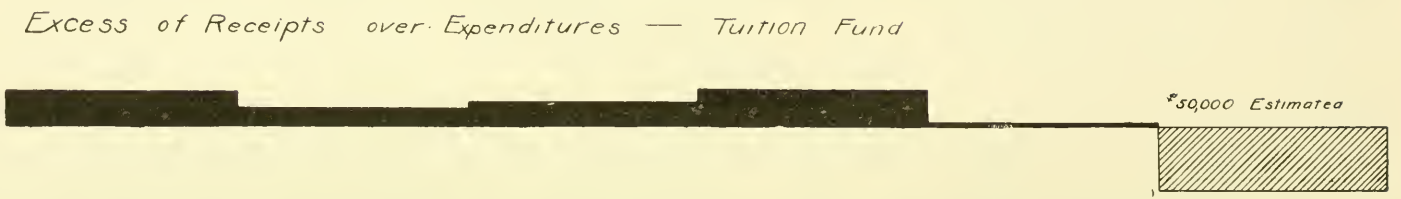
(Compiled from Clerk's figures)

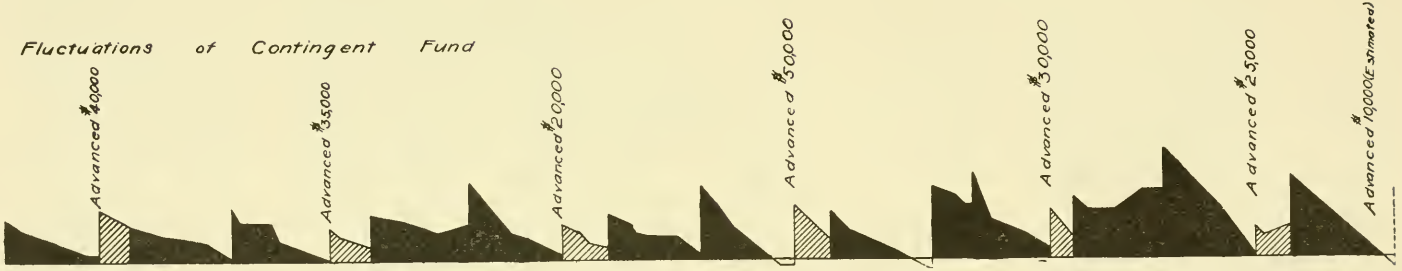
ITEM	TOTAL	Distribution by Funds: Tuition	Contingent	Bond and Interest
Balance, August 31st, 1916	$ 403,018.98	$250,230.17	$ 95,052.87	$ 57,735.94
Receipts 1916-1917	785,423.35	481,756.70	166,598.47	137,068.18
Available 1916-1917	1,188,442.33	731,986.87	261,651.34	194,804.12
Disbursements	860,684.25	535,116.00	206,995.75	118,572.50
Balance, August 31st, 1917	$ 327,758.08	$196,870.87	$ 54,655.59	$ 76,231.62

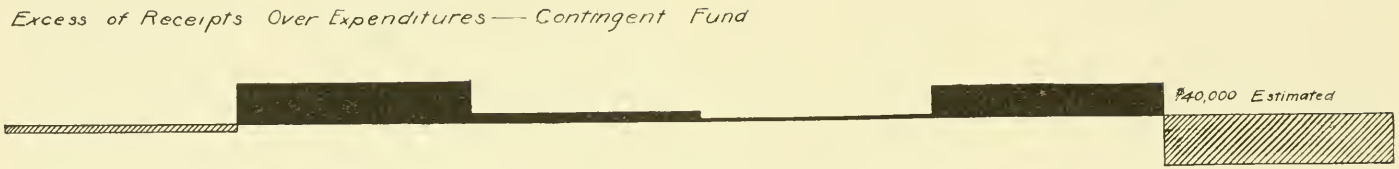
The chart which follows has been prepared to illustrate this situation. On this chart the shaded portions represent disbursements from advance credits. It is plain that these disbursements have been increasing both in frequency and amounts, two advances being required both in 1915-1916 and in 1916-1917 as against one advance in each of the four previous years. Such a practice can have but one result. The school authorities estimate that the schools by next January will be running over two months behind their requirements.

Fluctuations in School Funds 1911-12 to 1916-17.









The dotted lines represent deficiencies which would have existed if advances had not been received. Note the estimated deficiencies in the two funds.

6. School Finances and the Building Program.

Every time a school is built, two things happen:

a—The debt charges are added to;

b—Expenses for salaries and upkeep increase.

Both of these come out of the current revenue. Capital expenditure out of borrowed money cannot be indulged in without increasing taxation. And taxation, under the Smith One Per Cent Law, cannot be greatly increased even by the consent of the people.

The present building program of the Board calls for an expenditure of $875,000 during the next three years. As the balance in the building fund, including all authorized bond issues, is $531,098.20, a supplementary bond issue of over $440,000 will be required in the near future.

An additional amount of $200,000 will be required to take care of structural changes in existing schools, as, for example, in the Perkins, Howe, Kent and Spicer schools. If it is decided that these or parts of these should be completely rebuilt the sum required will be much larger. The old Perkins School certainly should be rebuilt as it is not only a disgrace to the community but a menace to safety.

TABLE IX.

Estimate of Building Program.

Total		$875,000.00
1.	Manchester Road	$125,000.00
2.	Firestone Park	200,000.00
3.	Jennings Addition	150,000.00
4.	Martha Avenue	150,000.00
5.	Goodyear Heights	125,000.00
6.	Merriman Road	125,000.00

Note: The above outline does not take into account a large number of structural alterations and replacements which investigation has shown to be desirable.

It is impossible to discuss a building program apart from educational policies. The Akron Board's program is based on a continuation of the present form of educational administration in all essentials, with the addition of expensive though necessary plant and equipment for manual training, domestic arts, physical training, and auditorium work, which have been so long inadequately provided for in the elementary schools of Akron.

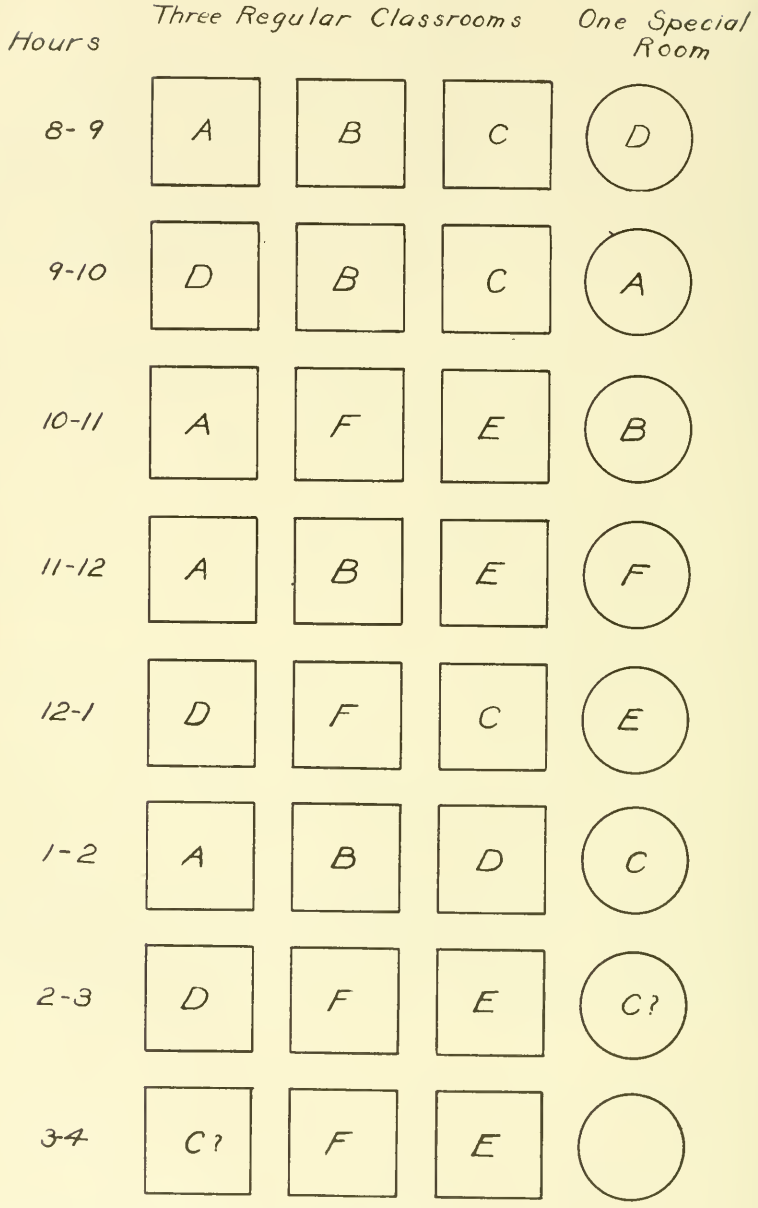
The question arises: Is all this new construction necessary in view of recent developments, such as the various two-platoon systems? The writer, on the basis of his experience, is absolutely and heartily in favor of all the special subjects and plant and equipment called for by any platoon arrangement, but is opposed just as firmly to any system which necessitates specialization by teachers or departmentalization below the High School, except in the case of a very few special subjects, and then only in the upper grades. **His reasons for this are fully stated**

on pages 159 and 160. In fact, he believes that departmentalization should be only partial in the first year of the High School where large groups of related subjects should be taught by the same teacher to the same children. This is in the interests of a broad, well coordinated basis for High School work. This does not mean that no scheme can be devised for the more economical use of school plant, **bearing in mind the fact that more important than occupying all the school space for the greatest possible part of each day is the occupying of all the child's interests for the greatest time consistent with the laws of his physical and mental development. Complete development of children is more important than complete use of plant. To place the emphasis on the second is bound to jeopardize the first. Place the child first and then devise ways and means for the fullest use of the investment in physical plant for the highest satisfaction of the child's needs.**

The extension of the period during daylight hours when the school buildings and playgrounds are open, the provision of rooms with certain special equipment, and the equipment of gymnasia, can greatly increase the use of school plant without giving the individual teacher any more work, without increasing the number of school hours per child, and without departmentalizing the elementary schools. As our notions as to the requirements of school discipline become modified in the direction of auto-discipline, the lessening of class-room nervous strain will become noticeable, and both teachers and pupils will be able to work more hours in the day and more days in the year with an increase—not a decrease—in the joy of life and consequently of efficiency.

Outlined below is a possible organization of a school consisting of three regular class-rooms and one special class-room. It provides for six teachers, each working five hours a day, and a school plant working eight hours a day (two rooms, seven hours). The special class-room might be equipped for art and elementary manual training work for all grades, for nature study, history and geography for all grades, or for a small gymnasium. For advanced manual training and domestic arts the children might go to a special center, such as would be provided by a large specialized elementary school. Or, again, Grades VII and VIII might be omitted from this school and sent to a central school for upper grades, such as a Junior High School which takes Grades VII, VIII and IX. In any event, four class-rooms would provide six classes with everything essential and more than they receive under usual existing conditions.

A Four-Room School on a Shift Plan
(Letters Represent Classes)



6 teachers for 5 hours each=30 teacher hours
6 classes at 5 hours each=30 class hours
4 class-rooms at an average of 7½ hours each=30 class-room hours

It will be noticed:

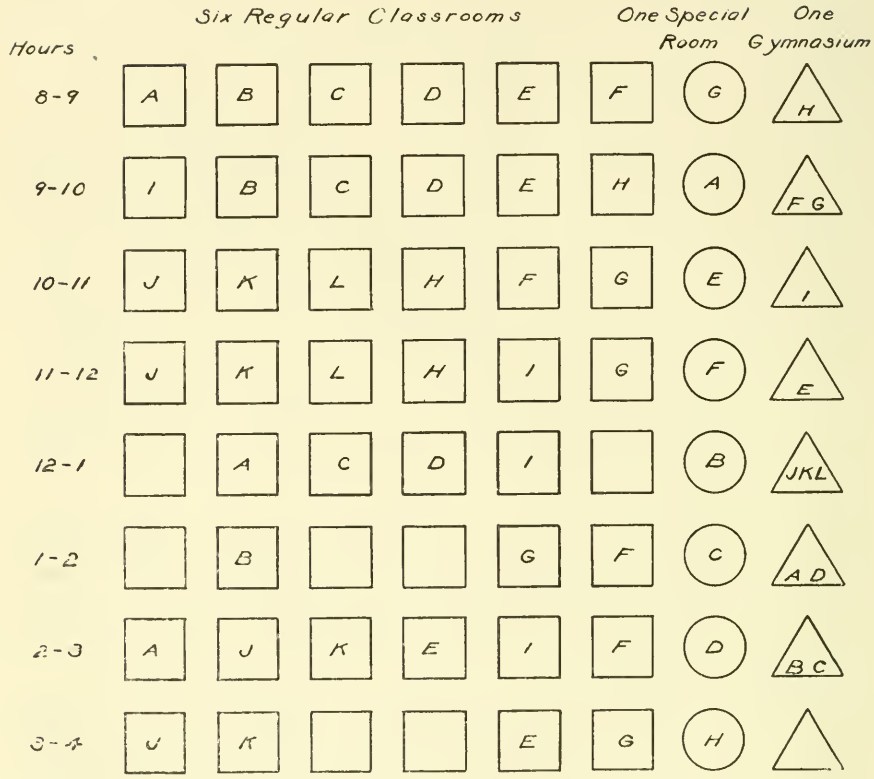
1. That the classes shift somewhat, but that the teachers shift with them;
2. That four of the classes are in a "home" room four hours out of five, and the other two for three hours out of five;
3. That five out of the six classes end the day in the room where they began;
4. Each class has at least one hour per day in the special room;
5. Two classes begin at eight, have one hour intermission, and get through at two o'clock (leaving three hours at least for the playground); two classes begin at eight, have two hours intermission and get through at three o'clock; and two classes begin at ten o'clock, have one hour intermission, and get through at four o'clock. If classes 5 or 6 were a kindergarten it would not need to begin until ten o'clock and the children would not need to come back in the afternoon, leaving two rooms for the instruction by kindergarten teachers of special children in the lower grades;
6. By enlarging the supposed building by multiples of four, the number of special rooms could be increased so that the curriculum could be enriched without decreasing the relative number of children taken care of.

This is not offered as an ideal arrangement but is presented in a schematic form without details in order to make the meaning clear. All sorts of modifications could be made by changing the time of opening one-half hour, by making the intermission uniformly one and a half hours long, etc. The details of such a scheme would have to be worked out by the authorities on the ground, in the view of all local conditions and modes of living.

The diagram which follows indicates how 12 classes could be taken care of in six regular class-rooms, one special class-room and a gymnasium large enough to accommodate three ordinary classes with a teacher each and leaving class-rooms vacant for several periods in the afternoon for the instruction of exceptional children. The letters indicate classes.

An Eight-Room School on a Shift Plan

(Letters Represent Classes)



It should be remembered that any such scheme disarranges, more or less, home time schedules, creates embarrassment when there are several children from one home, increases the expense of maintenance of plant and makes sanitation harder. All these things are true of the platoon plan. The question for the community to settle is whether they are prepared to put up with the inconveniences of some "shift" plan—which works no violence to the interests of the children—for the sake of the financial advantages. **The writer believes that in the near future an experiment of this nature will be forced by circumstances and that it should be undertaken at once before actual necessity requires it. It certainly is preferable to overcrowding and allows for improving instruction without any really serious inconveniences to the home.**

The writer believes also that capital expenditure on High School buildings might be reduced somewhat by the inclusion in them of a

greater number of rooms, smaller than the standard size, for the accommodation of small classes apt to be found in the Junior and Senior Years.

The following schedules show, for two High Schools, at the last period in the morning, the distribution of pupils in the various classrooms. It is obvious, of course, that not all the slack can be taken up, but it would seem that an intensive study by principals and teachers might effect considerable saving in space.

First High School

Class-room No.	No. of Pupils being taught	No. of Pupils studying at seats	No. of Sittings or places for pupils in the room
Regular			
1	0	4	48
2	25	8	47
3	24	4	47
4	23	0	40
5	0	20	44
6	25	15	48
7	0	14	52
8	21	8	55
11	21	14	50
12	25	9	57
25	16	8	39
26	0	24	40
28	22	21	43
29	14	24	40
31	18	15	42
32	19	9	48
34	28	10	41
35	0	5	40
38	0	3	45
Special			
10	22	0	30
13	0	0	27
14	30	0	30
15	17	0	30
18	24	0	30
19	20	0	24
20	10	0	27
22	20	0	34
24	21	0	25
30	0	0	38
36	17	0	16
42	19	0	....
43	18	0	18
44	9	0	35

Second High School

Class-room	No. of Pupils being taught	No. of Pupils studying at seats	No. of Sittings or places for pupils in the room
Regular			
1	20	0	35
2	12	3	42
3	20	11	46
4	19	0	46
5	21	0	48
6	17	13	41
7	....	14	44
8	12	22	84
9	22	12	40
10	18	15	44
11	23	7	44
12	18	2	33
13	14	4	26
14	21	20	84
15	0	41	84
16	22	12	42
Special			
1	23	0	0 (Gym)
2	5	0	30
3	19	0	35
4	20	0	30
5	25	0	35
6	10	0	15
7	28	0	36
8	9	0	18
9	11	0	23
10	18	0	42
11	0	0	32
12	20	0	34
13	15	0	20
14	5	0	28
15	0	0	28
16	8	0	30

7. The Schools and the City Government as Competitors for Public Funds.

Statements have been made that since the passage of the Smith Law the city has come off second best in its requests for funds. Table X which follows indicates the basis for this charge.

TABLE X.

COMPARISON OF TAXATION FACTORS BEFORE AND SINCE THE SMITH LAW.

Year	City Taxes Rate	City Taxes % of Total	School Taxes Rate	School Taxes % of Total	Difference Rate	Difference % of Total
1906-7	13.8 mills	47.9%	9.0 mills	31.2%	....	.....
1907-8	13.8 mills	47.9	9.0 mills	31.2	....	.....
1908-9	16.4 mills	50.0	10.6 mills	32.3	....	.....
1909-10	14.344 mills	46.3	10.4 mills	33.6	....	.....
1910-11	13.5 mills	42.2	12.0 mills	37.5	....	.....
Average	14.4 mills	46.9%	10.2 mills	33.2%	4.2 mills	13.7%
1911-12	5.5 mills	44.7%	4.4 mills	35.8%	.....	.....
1912-13	5.4 mills	43.6	4.9 mills	39.5	.....	.....
1913-14	5.4 mills	42.9	4.6 mills	36.5	.....	.....
1914-15	7.5 mills	51.4	4.8 mills	32.9	.....	.....
1915-16	7.0 mills	47.9	4.6 mills	31.5	.....	.....
1916-17	7.3 mills	47.4	4.8 mills	30.2	.....	.....
Average	6.35 mills	46.3%	4.7 mills	34.4%	1.65 mills	11.9%
Total Average Gain for School Taxes					2.15 mills	1.8%

Per Cent of Total Taxation Going to the Schools, Before and Since Passage of Smith One Per Cent Law

This table would seem to indicate that the city has received a slightly less proportion of the public funds and the schools somewhat more. The city has suffered relatively to the extent of perhaps $265,000. It is doubtful whether this difference spread over a term of years could have affected materially the city's financial position. Moreover, the schools' percentage of the total allotment was the lowest in the decade, while the city's was exceeded in only four years.

That requests for funds to meet the pressing needs of the schools have been frequently cut by the budget commissioners is shown in Table XI. **As the most important functions of any community, education and health control should not be allowed to suffer. If action with regard to the Smith Law—such as is recommended on page 21—is actually taken, rivalry for funds between the Board and the city will automatically disappear.**

TABLE XI.

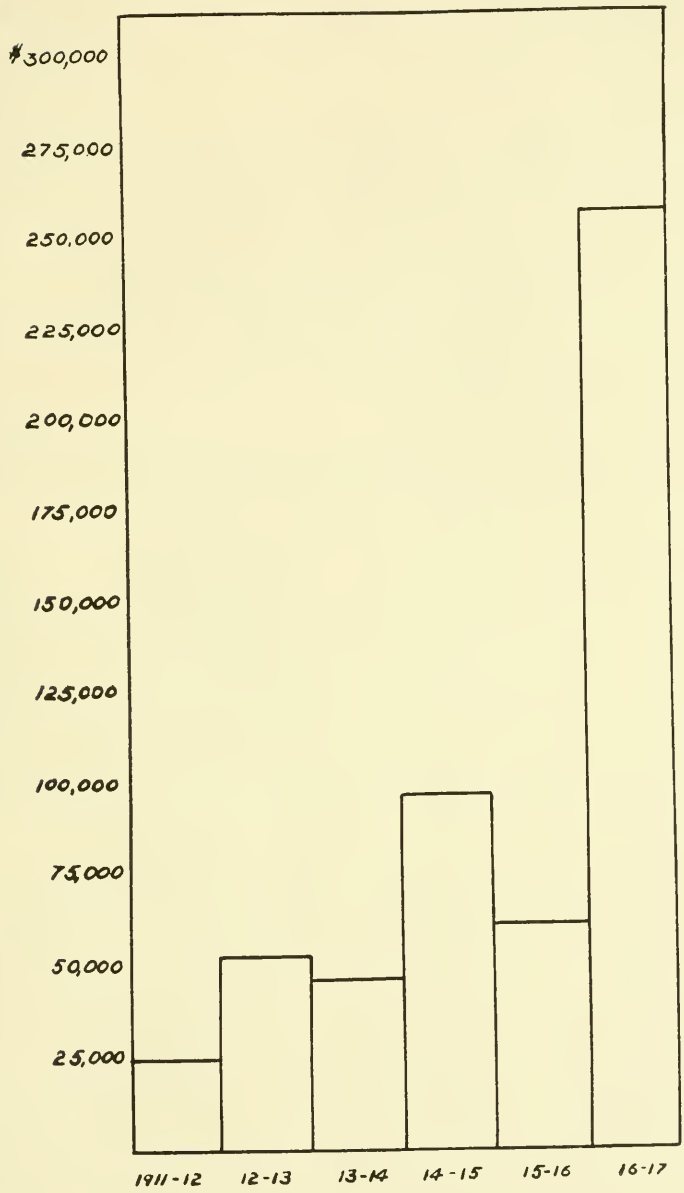
CUTS IN BUDGET ESTIMATES.

Year	Total Budget Estimates	Total Amount Allowed	Difference
1911-12	$385,000.00	$359,899.75	$ 25,100.25
1912-13	440,000.00	385,901.35†	54,098.65
1913-14	534,217.56	486,811.04	47,406.52
1914-15	670,000.00*	571,774.20	98,225.80
1915-16	675,100.00*	613,064.79	62,035.21
1916-17	912,000.00*	654,621.00	257,379.00
Total Difference			$544,245.43

* Does not include building fund estimates, the money for which was subsequently raised by bond issues.

† Does not include extra credit allowed as result of special election.

Cuts in School Estimates from 1911-12 to 1916-17



II. FINANCIAL METHODS.

The chief topics of interest under this head are:

1. Budget Procedure
2. Bond Issues
3. Financial Reports

1. Budget Procedure.

The initial difficulty in budget procedure, as already pointed out, is the overlapping of the tax year and the school year. Under present conditions of growth, it is practically impossible to estimate in June of one year what the requirements of the six-months period commencing in September of the next year will be. See Table XII which follows. This, taken in conjunction with the severe cuts to which school estimates have been subjected—often horizontal and without any careful consideration of readjustments between the funds—makes the problem of budget making a very difficult one.

TABLE XII.

DIFFERENCE BETWEEN ESTIMATED REQUIREMENTS AND BUDGET REQUESTS 1911-1912 TO 1916-1917.

Year	Estimated Requirements (Fiscal Year)	Budget Request† (18 months)	Difference
1911-12	$348,376.50	$385,000.00	$ 36,623.50
1912-13	419,066.08	440,000.00	20,933.92
1913-14	587,619.41	534,217.56	53,401.85‡
1914-15	628,843.50	670,000.00*	41,156.50
1915-16	684,185.91	675,100.00*	9,085.91‡
1916-17	835,672.50	912,000.00*	76,327.50
Total Excess of Requests over Estimates			$112,553.66

† These amounts, plus unexpended balance at end of year, were estimated to be necessary to finance the schools until March of the succeeding fiscal year.

* Omitting building fund estimates.

‡ Decrease.

The second difficulty is the absence of all true operating accounts as all accounts are on a cash-receipts, cash-payments basis, not a revenue-expenditure basis. Receipts and revenues are not the same thing. One knows how much money has been taken in in a year or month, and how much has gone out in a year or month, but one does not know how much the annual and monthly revenue and expenses have been. That is, the Board keeps no true cost accounts and cannot, therefore, determine monthly or unit costs. Neither can there be any true detailed appropriation accounting, although fund ledgers must be kept. Thus the Board has not adequate data currently available throughout the year for administration purposes nor available toward the end of the year as a basis for budget estimates. Each year a complete analysis of the year's expenditures must be made as no accounts produce the results automatically. That is, the budget is based on memoranda prepared for the purpose and not on systematically organized accounts.

Taking all these hindrances together, it speaks well for the conservative management of the school funds by the Board that it has been able to discharge all obligations when due with the exception of the refunding of a $33,000 bond issue in 1915. This has not been accomplished, however, without material sacrifices affecting the efficiency of the schools, both educationally and from the standpoint of hygiene.

2. Bond Issues.

In the decade ending 1915-1916 the bonded indebtedness of the schools increased from $245,000 to $1,715,000. This represents 1.08% of the valuation. The city's debt represents 4.5% of the valuation. See Tables XIII and XIV and charts, which follow.

TABLE XIII.

COMPARATIVE BONDED INDEBTEDNESS
1907 to 1916, Inclusive.

Year	Amount of Debt	Valuation*	Percentage of Valuation
1907	$ 245,000.00	$ 25,694,650.00	0.95
1908	230,000.00	27,146,360.00	0.85
1909	280,000.00	27,632,200.00	1.01
1910	315,000.00	31,523,940.00	1.00
1911	500,000.00	81,795,250.00	0.61
1912	913,000.00	94,122,280.00	0.97
1913	1,025,000.00	105,828,780.00	0.96
1914	1,213,000.00	119,118,990.00	1.02
1915	1,208,000.00	133,274,580.00	0.91
1916	1,715,000.00	145,471,330.00	1.08
Average Percentage of Indebtedness			0.94

* City valuation plus proportional assessment of Springfield, Portage, etc., January 29, 1917.

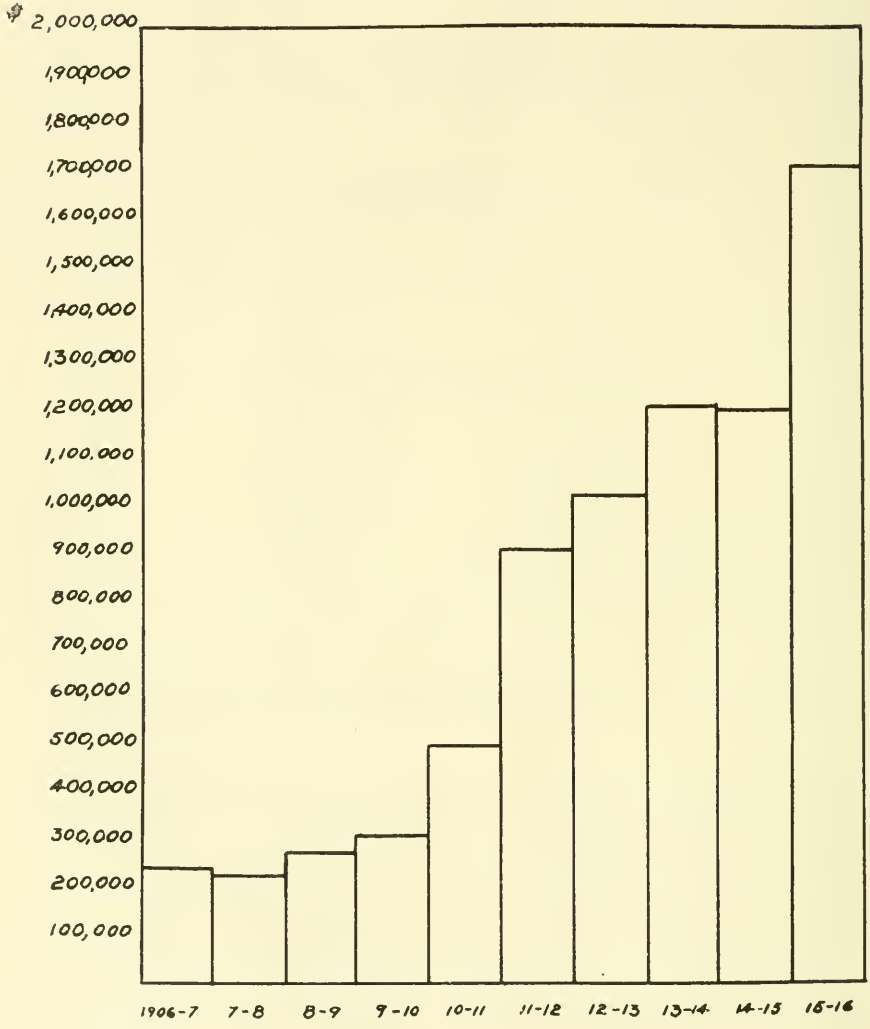
TABLE XIV.

RELATION OF DEBT CHARGES TO BONDED INDEBTEDNESS.

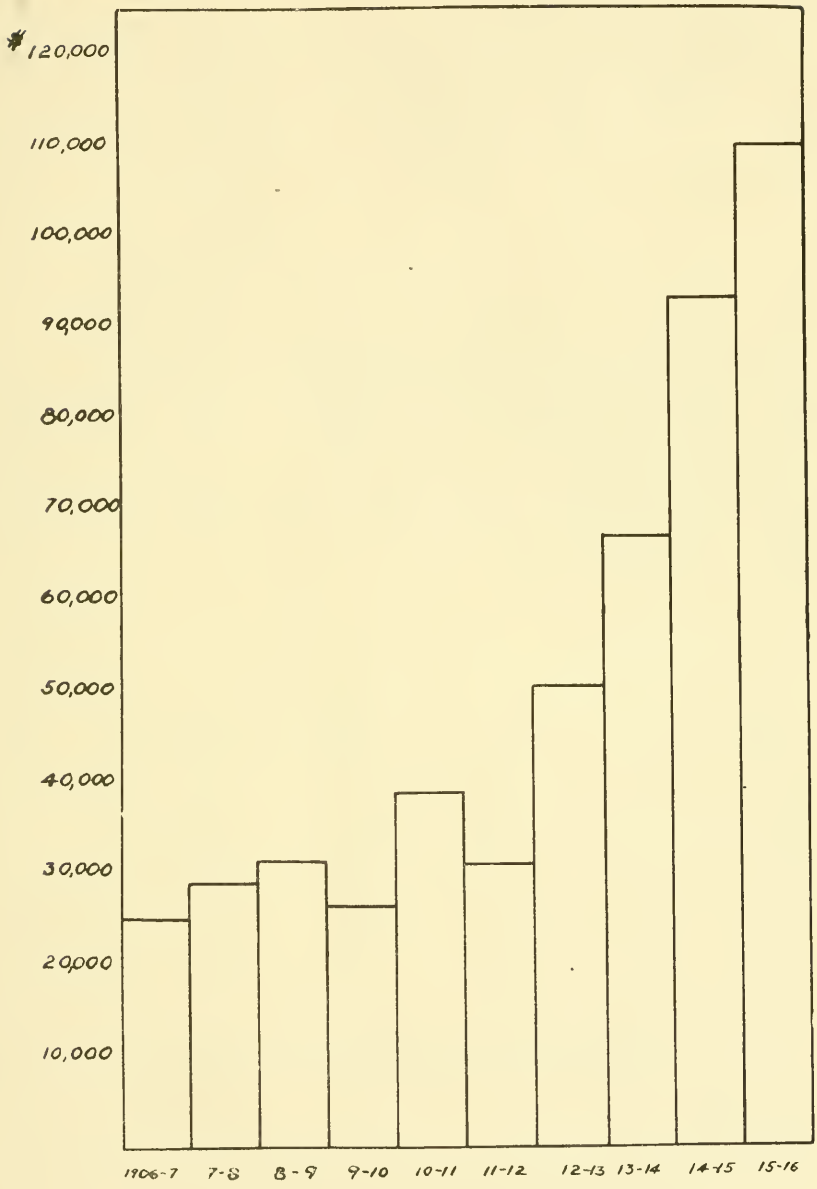
Year	Bonded Indebtedness	Debt Charges	Percentage* which Debt Charges are of Bonded Indebtedness
1906-7	$ 245,000.00	$ 25,320.50	10.3%
1907-8	230,000.00	29,260.84	12.7
1908-9	280,000.00	31,587.25	11.3
1909-10	315,000.00	26,755.55	8.5
1910-11	500,000.00	39,394.50	7.9
1911-12	913,000.00	31,094.17	3.4
1912-13	1,025,000.00	50,727.50	5.1
1913-14	1,213,000.00	67,120.00	5.5
1914-15	1,208,000.00	93,605.20	7.7
1915-16	1,715,000.00	110,155.00	6.4
Increase in Ten Years	$1,470,000.00 600%	$ 84,834.50 335%	

* Average ratio for 10 years: 7.9%.

Growth in Bonded Indebtedness from 1906-7 to 1915-16



Growth in Annual Debt Charges from 1906-7 to 1915-16



School bonds have been issued under two sections of the General Code, 7629 and 7625 respectively, the former permitting boards of education to issue bonds up to the equivalent of a two-mill rate without popular vote, and the latter providing for bond issues after special authorization by the people.

There seems to be some conflict as to the legal provisions at present governing the issue of bonds by boards of education in Ohio, our information being that the City Solicitor recently advised the Board against the issuing of certain bonds although professional bond buyers took up the issue without question. If there be any such conflict it should be immediately straightened out; for the present financial situation demands the utmost clearness in order to avoid embarrassing situations.

Table XV below shows that a fairly even distribution of redemption charges has been effected. This has been done, however, by postponing the first repayment of principal as much as 14, 17, 22 and 23 years. During all the time between the issuance of the bonds and the payment on the first instalment, interest is paid on the whole amount, so that **the present method not only hugely increases the amount of interest paid but does not equalize the funded debt charges, which include both interest and repayment of principal.** It will be observed that the twelfth and last issues of bonds on the list are each to be repaid in one instalment, 23 years after the dates of issue, interest being paid on the whole amounts for all that time. In these cases the interest paid before any reduction of principal occurs will amount to 100% or more of the total principal sums.

TABLE XV.

INCIDENCE OF BONDED DEBT*

as of April 2nd, 1917.

Note: The figures in these columns represent thousands of dollars, thus "20" means $20,000.

Date Issued	Amount Outstanding	%	Years '17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37	'38
6-30-06	$ 40,000†	3.65	20	20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
12- 1-06	50,000	3.65	....	....	20	20	10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
11- 1-08	10,000	4	....	....	....	....	10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
11- 1-08	20,000	4	....	....	....	....	....	20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
4- 1-09	35,000	4	....	....	....	....	....	....	35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
12-15-09	25,000x	4	5	10	10	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
6-30-10	150,000	4	....	....	....	10	10	10	....	30	30	30	30	....	....	....	....	....	....	....	....	....	....	....
10- 4-10	55,000	4	....	....	....	....	....	....	....	....	....	....	....	30	25	....	....	....	....	....	....	....	....	....
1- 9-12	63,000	4	....	....	....	....	....	....	....	....	....	....	....	....	5	30	28	....	....	....	....	....	....	....
11- 1-12	50,000	4	....	....	....	....	10	10	10	10	10	....	....	....	....	....	....	....	....	....	....	....	....	....
12-20-12	275,000	4	....	....	....	....	....	....	....	....	....	10	10	10	10	10	10	45	45	45	45	35	....	....
12-20-12	25,000	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	25	....
3- 1-13	60,000	4½	....	....	....	....	....	....	5	10	10	10	10	10	5	....	....	....	....	....	....	....	....	....
3-18-13	50,000	4½	....	....	....	10	5	5	....	....	....	....	....	....	5	10	10	5	....	....	....	....	....	....
4-15-13	25,000	4½	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	5	5	10	....	....
10- 1-13	25,000	4½	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	20	....
1- 9-14	70,000	4½	....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	....	....	....	....	....	....	....
3-18-14	81,000xx	4½	....	10	10	10	5	5	5	5	5	5	5	5	5	6	....	....	....	....	....	....	....	....
2- 1-15	33,000	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7	10	10	6	....	....	....	....
12-20-15	400,000	4½	....	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	....
2- 1-16	100,000	4½	....	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	....
11- 1-16	45,000	4½	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	45
TOTAL	$1,687,000		25	70	70	80	80	80	85	85	85	85	85	85	85	86	85	85	85	81	75	75	70	45

* Bonds outstanding on April 2, 1917. One new issue since (April 12, 1917—$125,000).

† Original amount $ 50,000—$10,000 redeemed 6-30-10.

x Original amount $ 50,000—$ 5,000 redeemed 1912, 1913, 1914, 1915, 1916 (12-15).

xx Original amount $111,000—$10,000 redeemed 1915, 1916, 1917 (3-18).

The condition is aggravated by the failure to establish sinking funds for long term non-serial bonds as provided by law. This is fundamentally unsound. **The Board should abandon the patch-work system of bond issues, whereby some bonds are repaid in one payment at maturity and others are paid in instalments beginning at varying periods after the issue of bonds. The serial bond method should be rigidly enforced in all future issues, and sinking funds established for those existing issues which are not now on the purely serial plan.**

3. Financial Reports.

The absence of statistical data such as are usually found in published financial reports, was a serious handicap to this study. This being so, what must be the handicap to the taxpaying public in Akron and even to the Board itself in trying to think effectively concerning the management of the public schools?

Outside of statements of fund balances and amounts of money deposited in the various banks, together with occasional calculations of bonded debt, interest payments, etc., there are no financial reports coming before the Board of which administrative use can be made. The annual summaries required by State authorities are of the most general type and are of no value in controlling costs during the year. This means that members of the Board must supply either from personal knowledge of the facts or from past experience that information which is so essential to the efficient management of the business affairs of a large and growing school system, such as that of Akron.

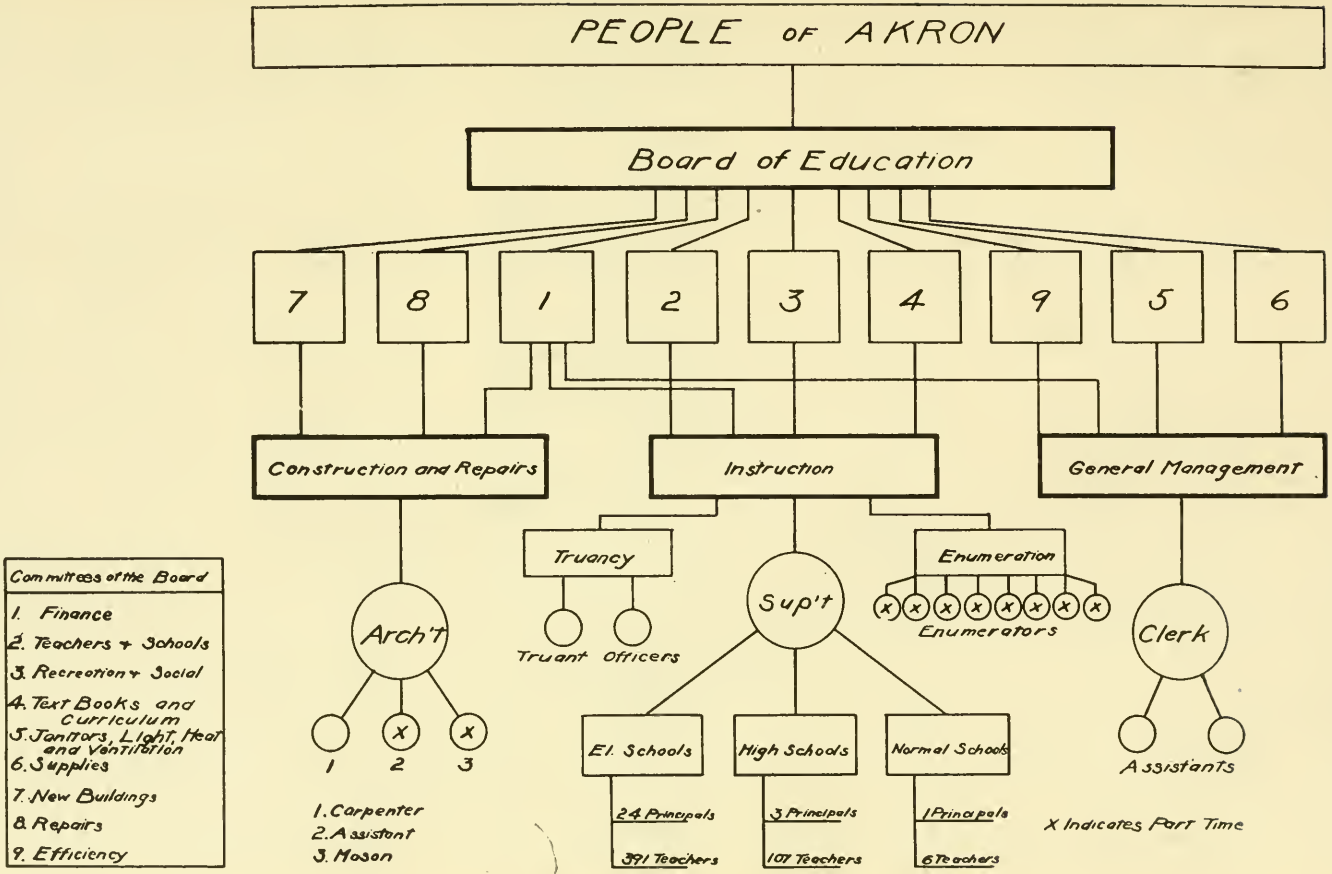
Probably the greatest lack in this connection is the absence of an annual financial and statistical report such as public corporations in general are in the habit of publishing. It is true that the legal requirements as to reporting are fulfilled and it is also true that other boards of education in Ohio besides that in Akron have felt obliged to withhold annual reports by reason of lack of funds. Nevertheless, the general summing up of physical and financial facts required for such a report would be of inestimable value in obtaining a clear insight into the business problems confronting the Board and would make necessary the absolute completeness and accuracy of all detailed records of distribution of cost, etc.

The Board will find that a clear, concise annual report issued promptly to the public will disarm a great deal of unthinking criticism and will meet considerable thoughtful criticism. Taking the community into its confidence will prove a good investment. The few hundred dollars which an annual report would cost should not prevent its publication. An informed electorate is generous. An uninformed electorate will become suspicious.

III. BUSINESS ADMINISTRATION

1. Organization of the Board.

One of the first requirements of administrative efficiency is the proper organization of the Board to which administrative officials are responsible. The chart which follows represents graphically the organization of the Board and gives a general outline of the staff organization.


PEOPLE OF AKRON
Board of Education
7
8
1
2
3
4
9
5
6
Construction and Repairs
Instruction
General Management
Committees of the Board
1. Finance
2. Teachers + Schools
3. Recreation + Social
4. Text Books and Curriculum
5. Janitors, Light, Heat and Ventilation
6. Supplies
7. New Buildings
8. Repairs
9. Efficiency
Arch't
1
X
2
X
3
1. Carpenter
2. Assistant
3. Mason
Truancy
Truant Officers
Sup't
El. Schools
24 Principals
391 Teachers
High Schools
3 Principals
107 Teachers
Normal Schools
1 Principals
6 Teachers
Enumeration
Enumerators
Clerk
Assistants
X Indicates Part Time

No doubt the organization of the Board is based upon experience but the comparatively large number of committees would seem to be unnecessary. One committee would seem to be sufficient to deal with all such matters as supplies, repairs, janitorial service, heating, lighting and ventilation—all having to do with the operation of the physical plant—unless the committee busies itself with administration details properly in the purview of its administrative officials. It would seem also that the two committees on "teachers and schools" and "textbooks and course of study" might be combined to advantage. A recent educational report by the Bureau of Governmental Research, Detroit, advises doing away with all standing committees, except a Committee of the Whole, the more or less technical details which now occupy a large part of the time of existing committees being relegated to the Board's responsible officials.

When important matters of policy are referred to sub-committees, almost the whole discussion is apt to occur in the sub-committees, so that as a matter of courtesy or perhaps of routine, momentous decisions may be made by the Board as a whole on the mere recommendation of a sub-committee—although a large part of the Board may not have the necessary information to vote intelligently on questions at issue. The sub-committee itself may not have been a unit so that the opinion of a minority of the Board may become effective.

Before any matter of policy is decided by the Board it should be discussed by the whole Board. **It is therefore recommended that all sub-committees be abolished, if necessary by appointing all members of the Committee on all sub-committees, and that any contentious or intricate problems be referred to small temporary committees of the Board for investigation, the results of which should be reported in full.** All meetings should be public—save perhaps those of sub-committees on the purchase of property—and the holding of partial or informal committee meetings for arriving at agreements which would render discussion in public unnecessary should be avoided.

2. Procedure of the Board.

An analysis of the minutes of the Board for the six months beginning November, 1915, shows that out of 156 matters considered during this term 48, or 31%, had to do with decisions as to policy. The remaining 69% were concerned with financial and administrative routine. Experience has shown everywhere that the failure to separate rigidly legislative functions from executive functions is a prime cause of inefficient administration. Granting these percentages obtain as a general thing, if the Board were entirely set free from administrative details they would either have thrice as much time to devote to discussion of policies or they could cut down by two-thirds their investment of time in Board work. The former would be preferable. Such a procedure would tend to induce a larger number of busy and capable citizens to be willing to serve on public boards and would thus widen the people's range of selection.

Executive and administrative details should be left to responsible officials so that the legislative and policy-forming functions of the

Board—their real functions—will not be swamped by the multiplicity of detail.

3. Accounting.

The accounts of the Board are apparently sufficient to insure honesty of administration. They are also a sufficient basis for the required financial statements to State authorities. They are insufficient, however, for administrative purposes, inasmuch as they do not in every case show actual expenditures by month for any year but, in most cases, only cash payments. For effective administration, Boards must know the actual expense of administering each main function and that not simply by the year but by the month. In the absence of a property ledger and a stores ledger, and in view of the fact that expenses of one year are not always charged up to the fiscal year to which they properly apply, the accounts cannot produce automatically, as they should, the cost facts necessary for administrative control. Approximate costs cannot be obtained without extensive analysis and accurate costs cannot be obtained at all. That is, knowledge of the actual value of all school property and accurate operating costs are not available at any given date.

It is true that the present accounting system includes a distribution ledger in which, as nearly as may be, disbursements are classified both by schools and according to character; but, as stated above, disbursements do not always correspond with the real expenses of the period covered and, moreover, the basis of distribution has changed considerably in recent years. From December, 1910, to September, 1914, with the exception of a short period in 1913, no distribution whatever of disbursements was made. Thus, neither comparative figures, total cost figures, nor unit cost figures are currently available for administrative purposes.

The Board maintains a bond record and frequent calculations of indebtedness and interest are made. Disbursements from bond funds are duly recorded but are not in all cases distributed to the various school buildings. In the absence of depreciation accounts, this affects the accuracy of any estimates of operating costs.

The most complete records kept are those of salaries. In these there has been no break. An invoice file, voucher index, fund ledger, miscellaneous receipts book and a warrant book are also maintained.

The fact that during this study a very considerable re-analysis was necessary to obtain salient facts indicates that considerable information obtainable in this way has not, in practice, been used by the Board for administrative purposes.

As time goes on it will become more and more difficult to secure memoranda from the accounts with the necessary detail. **It is, therefore, desirable that as soon as possible the accounts be placed on a basis which automatically produces the necessary facts without re-analysis and re-grouping.**

While a detailed accounting plan which would render currently available all information necessary for school administration could only be worked out on the ground and in close co-operation with the

State authorities, it is possible to make the following definite and basal recommendations:

a—That accounts be established on the revenue-expense basis as distinct from the receipts-disbursements basis;

b—That a complete system of stores records and accounts be instituted;

c—That monthly, quarterly and annual balance sheets and operating statements be prepared for the Board to assist them in administration;

d—That functional and object of expenditure cost accounts be established showing total, per school and per pupil costs under heads similar to the following:

GENERAL CONTROL (Regulative and Executive Service).
School elections.
Board of Education and Secretary's office—salaries.
Board of Education and Secretary's office—supplies.
Other expense of business control.
Superintendent's office—salaries.
Superintendent's office—supplies.
Superintendent's office—other expenses.
Compulsory education—salaries.
Compulsory education—other expenses.
Other expense of educational control.

INSTRUCTIONAL SERVICE (Supervision and Teaching).
Supervisors—salaries.
Supervisors—other expenses.
Principal's office—salary of principal.
Principal's office—salary of clerk.
Principal's office—supplies.
Principal's office—other expenses.
Other expense of supervision.
Salaries of teachers.
Text books.
Other supplies used in instruction.
Commencement exercises and exhibits.
Other expense of instruction.

OPERATION OF SCHOOL PLANT.
Wages of janitor and other employees.
Fuel.
Water.
Light and power.
Janitor's supplies.
General care of grounds.
Services other than personal.
Other expense of operation.

MAINTENANCE OF PLANT (Upkeep).

Upkeep of grounds (repairs).
Repair of buildings.
Repair and replacement of heating, lighting and plumbing equipment.
Repair and replacement of apparatus used in instruction.
Repair and replacement of furniture.
Repair and replacement of other equipment.
Other expense of maintenance.

FIXED CHARGES.

Pensions.
Rents.
Insurance.
Taxes.
Contributions and contingencies.

DEBT SERVICE.

Payment of bond—direct.
Payment of bond—sinking fund.
Redemption of short term loans.
Payment of interest—on bonds.
Payment of interest—on short term loans.
Refunds of taxes and tuition.

CAPITAL OUTLAY (Acquisition and Construction).

Land.
New buildings.
Improvement of new grounds.
Alteration of old buildings (not repairs).
Equipment of new buildings—heating, highting, plumbing and electrical.
Equipment of new buildings—furniture.
Equipment of new buildings—instructional apparatus.
Equipment of new buildings—other equipment.
Equipment of old buildings—heating, lighting, plumbing and electrical.
Equipment of old buildings—furniture.
Equipment of old buildings—instructional apparatus.
Equipment of old buildings—other equipment.
Other capital outlay.

AUXILIARY AGENCIES AND OTHER SUNDRY ACTIVITIES.

Libraries—salaries.
Libraries—books, repairs and replacements.
Libraries—other expense.
Transportation of pupils.
Care of children in institutions.
Provision of lunches.
Community lectures and community centers.
Recreation.
Other expenses.

These headings are taken from the uniform accounting system in use in the schools of the State of New York. They are, of course, only suggestive and would need modifications to meet local conditions. It is, however, the best classification of accounts for school purposes yet devised. It should be stated that in order to obtain true cost figures, depreciation accounts for buildings and equipment must be established.

e—**That the Board's budget and the classification of accounts be made to correspond, and that true appropriation accounts be set up corresponding to the budget headings under which appropriations are to be made by the Board.**

It will be necessary in order to obtain the full advantage of improved accounting and budget procedure to establish definite standards of service and cost as well as physical standards for articles purchased and materials used. To insure adherence to these standards continuous tests should be carried on as, for example, in the case of coal. **It is recommended that co-operative arrangements be established with the Municipal University and the City Testing Laboratory for the satisfactory making of such tests. Not only would the Board benefit in the way of obtaining full and uniform value, but the bi-product of training resulting to the students of the local University—many of them graduates of the High Schools—would be extremely valuable to them and to the community.**

4. **Audits.**

According to law, the accounts of the Board are audited by the State authorities, approximately every two years. Private audits were made in 1912 and 1913. It is, therefore, evident that the books have been open to competent inspection and that little, if any, fault can be found with the accounts if their present basis be accepted. Several instances of disagreement between annual statements and original documents were met with during the study, but, in all cases but one, they were due to differences in accuracy of distribution. The only case of actual inaccuracy was due simply to an error in transcribing. It should further be pointed out that while the approximate accuracy of the tables in this report may be assumed, the absence of continuous records in some cases and some uncertainty as to the absolute correctness of some data used, make it impossible to guarantee their absolute accuracy. **Previous, therefore, to the installation of any new system of accounting, a thorough audit by some competent private firm is recommended. Its suggestions will be of service in working out, with the State authorities, a system adapted to local needs and conforming with the State requirements.**

5. **Office Arrangements.**

In connection with the business offices of the Board the following suggestions are offered:

a—That all existing records be kept up to date;

b—That greater attention be given to planning the day's work;

c—That time sheets be instituted;

d—That requests for information be handled with greater promptness;

e—That office rules be adopted to cut down the loss of time from the interruption of visitors.

In connection with the above suggestions it should be borne in mind that, especially previous to 1914-1915, the business office has been undermanned, and that the handicaps arising from its being used at the same time for accounting, the distribution of supplies, and the meetings of the Board, are considerable.

6. Contracts.

Contracts for buildings are let according to provisions of Section 7623 of the General Code. Bids in the case of buildings are solicited under four distinct titles, namely: General Contract; Heating and Ventilating; Plumbing; and Electric Wiring. This is in accordance with good practice now obtaining. As to how the handling of contracts has worked out, the surest test is a comparison between contract and actual costs of buildings constructed under contract. A tabulation in this connection has been made by the central office as follows:

Building	Contract Price*	Actual Cost*	Difference
Jennings	$102,748.68	$ 94,042.56	$8,706.12
Bowen	105,532.06	100,872.54	4,659.52
Robinson Annex	80,869.37	77,591.70	3,277.67
Miller Annex	90,197.00	90,929.83	732.83†
Portage Path Annex	70,807.07	61,936.72	8,870.35
F. H. Mason	99,434.47	106,506.09	7,071.62†

* Excluding land.

† Excess.

This showing speaks well, in the main, for the financial side of the contract work on buildings. It may be fairly doubted, however, whether the "actual cost" figures are complete in all cases. Indeed this much has been intimated by the School Clerk.

Another important point in this connection is the unit or cubic foot cost of buildings erected under contract. For five of the buildings cited the approximate unit costs are:

Bowen	$0.185 per cubic foot
Robinson Annex	0.232 per cubic foot
Miller Annex	0.356 per cubic foot
Portage Path Annex	0.276 per cubic foot
F. H. Mason	0.215 per cubic foot

No detailed analysis of conditions and methods of construction has been possible, so that no comment is offered with regard to these unit costs. Continuous cost comparisons of this sort, however, should prove useful in the construction of future school buildings.

7. Supplies.

The Board is to be commended not only for purchasing supplies under annual contracts, but in setting the dates of the contracts at

times when the markets seem to be most advantageous. That the purchase of supplies according to contract has been a source of strength in dealing with the various firms that handle school supplies can be seen from the information presented in Table XVI. Here it is evident that although in the case of the twenty-nine supplies listed, there has been an increase in price in the case of seventeen items, there has been no increase (a decrease in some instances) in the case of twelve items. In a rapidly rising market such as the present, a continuous comparative record of this sort tends to place the Board in a very advantageous position when doing business with dealers in school supplies.

TABLE XVI.

COMPARATIVE COST OF SCHOOL SUPPLIES
1907-1908 and 1916-1917

ITEM	UNIT	Price 1907-8	Price 1916-17	Per cent Increase
Stationery and Drawing Supplies:				
Foolscap paper, single sheets	Ream	$0.33	$0.42	27%
Notepaper, 5 x 8	Ream	.17½	.14	20 x
Letter-paper	Ream	.27½	.31	13
Manilla writing paper, ink	Ream	.27	.36	33
Legal Cap	Ream	.77½	1.05	35
English Note (filler)	Ream	.39	.31	20 x
Composition Books	100	1.69	2.70	58
Spelling Records, No. 1	100	1.55	1.80	16
Spelling Records, No. 2	100	2.40	2.60	8
Pens	Gross	.18	.20	11
Lead Pencils	Gross	1.75	1.65	6 x
Pen-holders	Gross	.75	1.50	100
Crayon, White Dustless	Gross	.18	.12½	30 x
Library Paste	Gallon	.75	.65	13 x
Pencil Paper (News, 7 x 10)	Lb.	.02 25/44	.04	60
Janitors' Supplies:				
Ammonia	Qt.	.08½	.07½	12 x
Waste Baskets	Each	.45	.48	13
Brooms	Dozen	3.25	4.75	46
Counter Brushes	Each	.40	.39½	1 x
Floor Brushes	Each	.88	.85	3 x
Chamois Skins	Each	.47½	.48	1
Cheesecloth	Yard	.04	.04	0
Mop Cloth (Flannel)	Yard	.22½	.25	11
Gas Mantles	Each	.12	.06	50 x
Oil Soap (Linseed) 10-lb. Pails	Pail	.78	1.65	110
Toilet Soap, 3-oz. bars	100	3.50	1.70	51
Laundry Soap, 10-oz. bars	100	2.70	2.70	0
Toilet Paper, 2,000-sheet roll	Roll	.07¼	.09	24
Washing Powder, 4-lb. packages	Lb.	.03⅔	.03½	5 x
Net Average Per Cent Increase all items				35%

x Decrease.

Coal is the most important single article purchased on contract by the Board. Contract prices for coal show a uniform increase, the average price, delivered, being $2.36 per ton in 1907-1908 and $2.70 per ton in 1916-1917. This increase is not excessive in view of general conditions, but the quality of the coal delivered this year, in the opinion of most of the school janitors, was very poor. **Any tendency to make up for a low price by supplying an inferior grade can be effectually blocked if each article is purchased according to a standard and tested on delivery as suggested in foregoing paragraphs.**

PART B
THE PHYSICAL PLANT AND EQUIPMENT

I. SITES AND BUILDINGS.

1. General.

Akron has three High Schools, one combined normal-model-elementary school, and twenty-six elementary schools, one of which also provides for the first two years of High School. These buildings vary from one-room rural schools to the "socialized" type, of which the Bowen is an example. The following pages contain photographs of the six main types of school building found in Akron. These may be listed as to architectural type and layout and described briefly as follows:

a—The one-room school—4 examples. This type will soon become extinct in Akron. (Page 78.)

b—A type representing a half-way station between rural and urban models. (Page 78.)

c—The familiar gable type, represented by six buildings. (Page 79.)

d—The composite building formed by the addition of a modern wing to an old building of the gable type. (Page 79.)

e—The "court" type, probably the most distinctive of all Akron types, with seven examples. Buildings of this kind have a central court above which class-rooms are ranged and into which they enter. The court goes up two stories, but the second story has a promenade about the central well. This type of building is very attractive, particularly on the inside, and from the standpoint of the old style rigid discipline has various points to commend it. The central court is very well adapted to folk dancing and light gymnastics but on account of its location and absence of direct lighting is not suitable for gymnasium work. On account also of its location amid class-rooms it is not available for many auditorium purposes and even after school hours the labor of preparing it for such use and removing furniture and equipment after use is very arduous and tends to discourage continuous community participation in the social center life possible to all schools. All things considered, apart from its social and special uses, it is doubtful if this type of building is economically justifiable. (Page 80.)

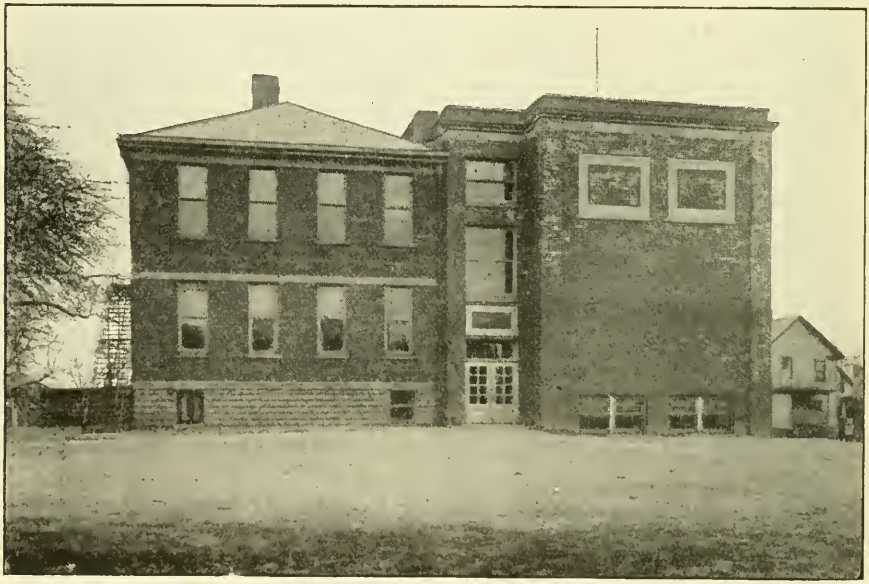
f—The modern or improved "auditorium" type of school, of which the Bowen and Jennings are two outstanding examples. Two more buildings of this type are about to be erected. It is planned to make these buildings an improvement even on the two schools of this type now extant. (Page 80.)

SCHOOL BUILDING—Type "A."

(Merriman)

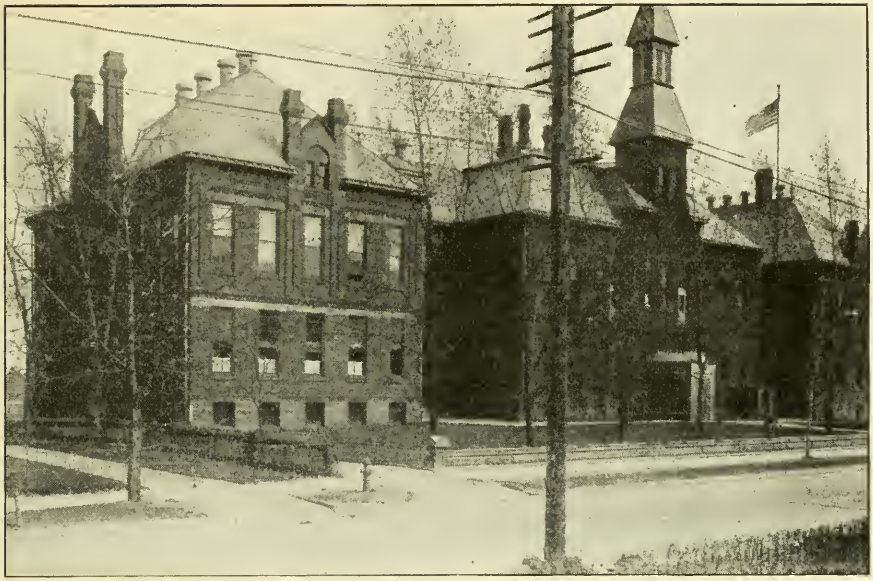
SCHOOL BUILDING—Type "B."

(Caldwell)



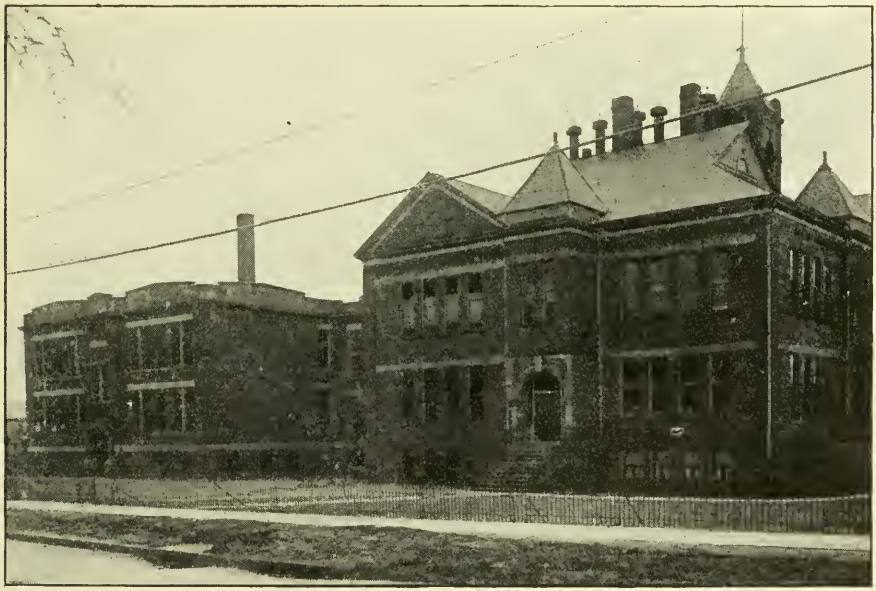
SCHOOL BUILDING—Type "C."

(Kent)



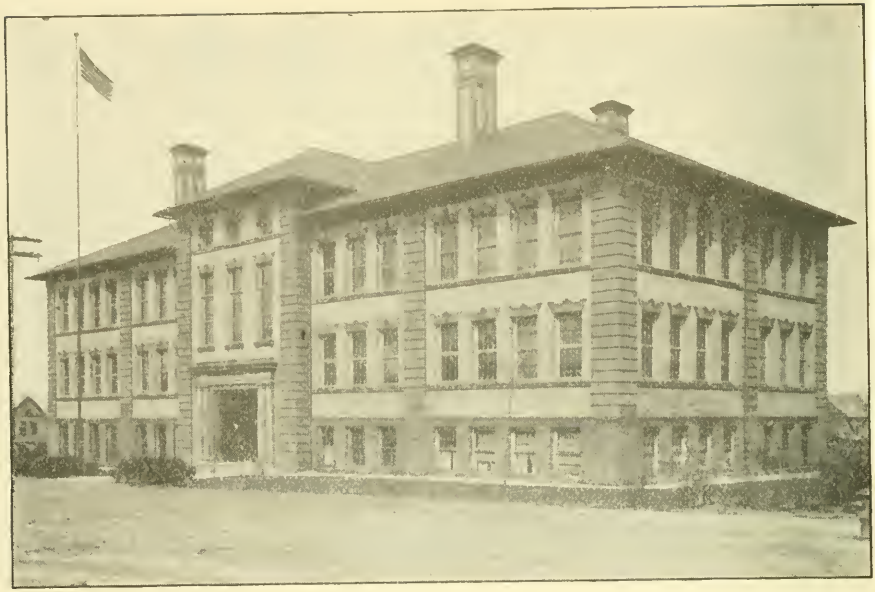
SCHOOL BUILDING—Type "D."

(Bryan)



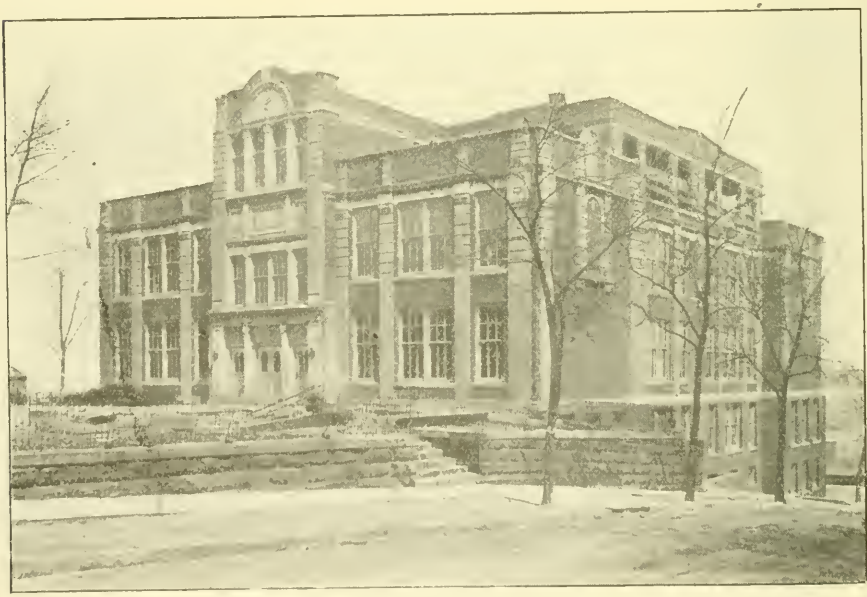
SCHOOL BUILDING—Type "E."

(Fraunfelter)



SCHOOL BUILDING—Type "F."

(Bowen)



That so many types of school buildings are to be found in Akron is not surprising. The rapid growth of the city would entirely account for it. Including kindergarten seats and other special sittings there are in Akron 23,338 separate sittings. The number of pupils in school at a given time may rise as high as 21,554. That is, 91.9% of the seats are in use at that period in the year when there is the greatest effective membership. Considering that, obviously, it is not always possible to put the child without a seat where there is a seat without a child, this is a high percentage of use. Without a radically different type of organization it could hardly be improved. That there has been so little actual congestion is a remarkable fact. Among rapidly growing cities, Akron's situation may be regarded as almost unique. Only three portable structures were found in Akron. During a similar study made by the same observer in a city of about 350,000, two years ago, seventy such buildings were found. At the same time it must be noted that this excellent record for Akron has been secured partly by the sacrifice of special plant and equipment of prime educational value. In other parts of this report the desirability of enriching the motor elements in elementary education has been emphasized. These are the elements which have suffered most as a result of what, in the face of the State laws, seemed to be necessary economies in construction. As is pointed out in Part "C," the evil results of this have been greatly minimized by developing, as far as possible, the "expression" side of academic subjects, but the time is now here when the best, most complete and most all-round training must be demanded for the children of Akron. The building of the Bowen, Mason and Jennings schools and the projection of two even more modern buildings indicates that the present trend in school construction is in the right general direction. Chapter VIII. of Part "B" of this report outlines a tentative building program for Akron.

During the study every building in Akron was visited and careful notes taken on the main points affecting health, safety and suitability for school purposes. Those who made the study were given the full co-operation of the Board and of all its employees and are under great obligation to the school authorities for extensive information supplied and admission to official files and records.

The items noticed in the study are best set forth by the score sheet below:

TOTAL PERFECT SCORE		100%
1. **Location**		15%
Site	3%	
Noise Conditions	3	
Dust or Smoke Conditions	3	
Accessibility	3	
Environment	3	
2. **Grounds**		10%
Adequacy	2%	
Surface Conditions	2	
Appearance	2	
Apparatus	4	

3. **Structural Conditions** 20%
   - Fire Hazard 5%
   - State of Repair 5
   - Design 5
   - Construction 5

4. **Heating and Ventilation** 25%
   - Adequacy of Plant 5%
   - Arrangement 5
   - Intake Conditions 5
   - Smoke Conditions 5
   - Operation 5

   Country Schools Only:
   - Adequacy 15
   - Arrangement 10

5. **Sanitation** 30%
   - Adequacy of Facilities 5%
   - Type 5
   - Lighting 5
   - Air Conditions 5
   - Drainage 2
   - Drinking Water Facilities 3
   - Appearance 5

   Country Schools Only:
   - Adequacy 10
   - Condition 10
   - Drinking Water Facilities 10

The scores of individual schools on this basis are given in Table XVII which follows.

TABLE XVII.

SUMMARY OF SCHOOL SCORES

(For details see Table XVII-A)

SCHOOL	Total Score	Location	Grounds	Structure	Heating and Ventilation	Sanitation
Central High School	68	15	8	15	15	15
South High School	85	9	6	20	25	25
West High School	93	15	8	20	25	25
Average—High Schools	82	13	7	18	22	22
Allen	62	6	6	10	15	25
Bowen	71*	9	2*	15	20	25
Brittain	53	12	6	10	15	10
Bryan	74.5	15	2	15	20	22.5
Caldwell	73	15	6	12.5	17.5	22
Crosby	66	15	6	10	25	10
Forest Hill	88	15	6	20	25	22
F. H. Mason	88	12	6	20	20	30
Fraunfelter	66	15	6	15	15	15
Goodyear Heights	71	15	6	10	20	20
Grace	73	12	6	15	20	20
Henry	74	15	6	15	25	13
Howe	58	12	4	12.5	17.5	12
Jennings	81	15	6	15	15	30
Kent	60	9	6	10	20	15
Lane	76	12	4	15	17.5	27.5
Leggett	74	15	4	15	17.5	22.5
Lincoln	74	15	6	10	20	23
Miller	65	9	6	10	15	25
Perkins Normal	50.5	12	4	7.5	15	12
Portage Path	86	15	6	20	15	30
Robinson	80	9	6	15	20	30
Samuel Findley	79.5	15	6	12.5	20	26
Spicer	63	15	8	10	15	15
Average—Elementary Schools	71.5	13	6	13.5	18	21
Merriman	66	15	6	10	25	10
Lovers' Lane	46	15	6	5	20	0
Oak Grove	61	12	4	15	20	10
Triplett	53.5	15	6	10	22.5	0
Average—Country Schools	56.5	14	5.5	10	22	5
AVERAGE FOR ENTIRE SYSTEM	70	13	6	14	21	16
PERFECT SCORE	100	15	10	20	25	30

* Temporary conditions which are being attended to; building not accepted by Board at time of inspection. The final score of this building would be much higher.

These scores cannot, of course, be regarded as authoritative and are presented mainly for illustrative purposes.

While the standard used can be considered simply as a provisional one, the results are of great value and will be of still greater value if similar scoring is done each year for comparative purposes, particularly under the headings of grounds, ventilation and sanitation. Finely itemized score cards on the care of buildings might be drawn up as a basis for the control of janitorial services and as a spur to friendly rivalry between schools. For this purpose, only points under the control of principals, teachers, janitors and pupils should be considered.

In the appendix will be found Table XVII-A which gives, in more detailed form, the information supplied in Table XVII.

In order to give a more definite idea of actual conditions found, summaries of field notes are given below:

2. Locations and Sites—Summary of Inspection.

Out of 31 school locations considered, 21 may be regarded as satisfactory. The following defects were noted with regard to the remaining 10 locations:

South High School—Cramped location.

Allen School—Street noises and dust.

Bowen School—Occasional smoke nuisance.

Grace School—Street noises.

Kent School—Street noises and dirt.

Lane School—Ground low.

Miller School—Noise from trains; trouble from smoke.

Perkins School—Street noises.

Robinson School—Ground low.

Oak Grove School—Inconvenience of access.

It needs but little familiarity with the actual details of these locations to show that in a majority of cases the fault is due to conditions for which the Board of Education cannot be held responsible. Even in the case of the Lane and Robinson Schools the obvious convenience of these buildings for the people of the neighborhood goes far to equalize the disadvantage as to site. On the whole, it must be considered that Akron's school locations have been chosen with commendable care; and the selection of new sites at the present time—the Margaret Park and Merriman locations, for example—show that the Board is alive to the value of "high and dry" situations for all schools.

3. School Grounds—Summary of Inspection.

The school grounds of Akron are in practically all cases deficient in play-ground apparatus for children. The seriousness of this is not diminished by considerations of economy or the effects of the Smith Law. While Akron, comparatively, can hardly be regarded as a congested city, and many open places still remain where children may play after school hours, there is no promise of the permanency of these conditions. Moreover, there are several schools—such as the Spicer, Miller, Crosby, Henry, Allen, Bowen and Kent Schools—where a properly equipped and supervised school yard would draw a continuous stream of school children. **Akron cannot afford NOT to exploit to the full this avenue to child culture, and, therefore, to the development of citizens.**

Upon a large number of the yards cinders have been spread. These seem to provide a very satisfactory surface for play. The rather ugly, bleak appearance given by the cinders could be relieved greatly by fringes of trees and strips of grass around the play areas.

4. Structural Conditions—Summary of Inspection.

Of the thirty-one individual school buildings in the Akron system, there are eight that may be considered as practically perfect from the standpoint of structural conditions. Twenty-three schools are not fireproof, in the modern sense. Sixteen schools show flaws in walls, ceilings, floors or staircases. For the most part these can be taken care of by repairs or slight alterations. The schedule below gives a summary of field notes on the different buildings:

SCHEDULE OF STRUCTURAL DEFECTS.

Central High School—In old building, warped woodwork and leaky roof, together with defects in plastering. In new building, leaking under boys' locker-room.

South High School—No special criticism. Is beginning to show signs of wear—cracks in plastering, etc. Leak in fan room which engineer had tried to remedy but so far had not succeeded in stopping.

West High School—No comment.

Allen School—Considering age, building is in good repair. Front staircase, however, is badly worn and should be replaced. Cracks in plastering of ceilings and walls numerous. Exposed electric wiring in attic. Danger in case insulation should wear off.

Bowen School—Defects in design noticed; thermostats not properly located; ceiling in one of the open-air class-rooms not according to standard; careless connection between floor and staircase on top floor. Auditorium is not high enough and lower hallway is not sufficiently lighted. Model flat is defective in not receiving direct light through windows. (This building not yet accepted by Board of Education.)

Bryan School—Ceilings in old building badly "peeled." Walls have too dark tints. New building satisfactory.

Caldwell School—Old portion not fireproof; walls and ceilings cracked; wooden rafters under main floor and over furnace are exposed. New portion gives impression of frail construction. A number of very recent improvements indicate that conditions are recognized.

Crosby School—Not fireproof. Heating plant not in fireproof compartment. Stairs badly worn, particularly basement stairs. Cracks in outside brickwork indicate settlement. No "panic bolts" observed.

Forest Hill School—No comment except that general type of construction seems frail.

F. H. Mason School—No comment except that objection was made to alleged waste of space occasioned by five store-rooms.

Fraunfelter School—It is beginning to show age; woodwork badly warped in a number of places. Several cracks in plastering. Attractive in appearance but contains too much exposed woodwork. Is not fireproof but of "slow burning" construction.

Goodyear Heights—Frame building without fire protection. (No portable extinguishers seen.) Bad designing; entrance on two sides is through toilet rooms to small central hall. Construction not good; evidence of defective plastering.

Grace School—Not fireproof but in excellent state of repair.

Henry School—Not fireproof but in good structural condition. Basement room not well adapted for class-room work.

Howe School—Old portion of building in poor condition; plastering in practically all rooms defective; floors and stairs badly worn; several dark cloak rooms. In two rooms holes in ceiling have been allowed to remain during entire school year. Outside walls of old building are cracked and indicate settling. Basement floor rough and uneven and space badly cut up by partition walls. (This general defect is typical of the "gable" type of school.) New portion of school in good structural condition.

Jennings School—Faults principally in design; passageway through assembly hall on lower floor; gymnasium in basement cramped; coal-room situated next to fan room, which allows coal dust to get into ventilating ducts.

Kent School—Older portions of building show considerable wear and tear. Front stairs narrow and badly worn; floors in portions of hallway and in seven class-rooms in need of replacement; plastering in two rooms badly cracked; in one room had recently been partially removed to prevent its falling down. Basement badly cut up by partitions, but well kept.

Lane School—North wing of old building has two badly cracked walls and ceilings, indicating settling or defective foundation. Otherwise in good condition.

Leggett School—Old building shows signs of settling; floor in one room sags noticeably. Plastering fell from ceiling in one of downstairs rooms last year. Cracks in ceiling and walls numerous. New building satisfactory.

Lincoln School—Evidence of poor construction; front stairs and approach are badly worn; leak in roof has given much trouble; plastering on exposed sides of rooms has decomposed, leaving unsightly appearance. A number of cracks in plastering.

Miller School—Old building not fireproof but of "slow burning" construction. Shows settling. Large number of cracks in walls; ceiling in two rooms broken. Floors show wear. Roof reported to leak in two places. New building reported not carefully finished by builders; doors and windows loose. Deficiency in accommodation for pupils' wraps noticed throughout this school. (This condition has been remedied.) Principal complains that two rooms in

old building have been made unserviceable by addition of new wing and has requested structural alterations to remedy this condition.

Perkins Normal School—Old building of old design and not in accordance with modern standards. Not fireproof. Halls and stairways too narrow. Floors, walls and ceilings in poor state of repair; in one room a hole in plastering several feet square; in other rooms appearance of plastering very unsatisfactory. Basement room damp and ill-adapted for school purposes. (In this room was noticed an escape valve connected with the heating plant which operates all day to the annoyance of teacher and pupils.) State Building Department on January 3, 1917, recommended what amounts to a reconstruction of the entire building and declared basement room unfit for class-room purposes. No action taken as yet. In new building conditions are better, although building is not fireproof, and there are numerous cracks in plastering. (See also schedule for sanitary defects.)

Portage Path School—Conditions in general satisfactory, although complaint has been made that room used as gymnasium is very much too small for the purpose. At time of visit part of basement lavatories not completed and a recent bursting of water pipe, due to absence of dampers on ventilating outlet, had caused considerable trouble.

Robinson School—Indications of settling of portions of old building. Cracks in plastering and decomposed plastering on exposed side of several rooms. Noise from ventilating hoods disturbs some classrooms. Water pressure frequently inadequate and said to be due to nearness of large factories.

Samuel Findley School—Old building in poor state of repair; in one room ceiling is broken through and in other rooms it appears to be loose. Pupils' wraps placed in and about hallways and in room formerly used as principal's office. Floors badly worn. New building of "slow burning" type and in good structural condition.

Spicer School—Older portions of building show hard wear; large cracks in floors and several cracks in plastering. Basement staircase narrow and badly worn. Floor of upstairs hall should be replaced. Part of basement has no flooring and principal has observed that rooms above this section of basement have unusually cold floors. Basement badly cut up by partitions which interfere with passageway.

Country Schools—At Merriman School whole of storage-room is bulging badly and threatens to collapse. Lovers' Lane School and old building of Triplett are in poor structural condition.

As a matter of fact, the school buildings of Akron do not exhibit the more glaring faults common to many American school systems. As to neglect of repairs, however, such as were noticed in the Howe, Kent and Perkins School buildings, there can be no entirely satisfactory ex-

planation. At the Howe School it was reported to the observer that the notice of the Board of Education had been directed to the holes in the ceiling and the disfigured walls at the beginning of the present school year, while in the Perkins School a large rent in the plastering had existed for several weeks previous to the time of inspection. The floors in at least two rooms at the Kent School were so badly worn as to make satisfactory cleaning a practical impossibility. **It is certainly of great sanitary and ethical importance that all school buildings should be kept in a state of good repair.**

5. **Fire Escapes.**

Special mention at this time should be made of the fire escapes which are attached to the non-fireproof "gable" type of school. It was reported to the observer by several principals that specific orders had been issued against the use of these structures on the ground that they were not safe for the school children to use. Examination of typical fire escapes has shown that this is a fact. For all practical purposes, therefore, these fire escapes might better not exist.

As long as there are non-fireproof school buildings the law requires fire escapes to be attached and, as this is the case, making them safe would seem to be a wiser solution than directing that they should not be used. The fire escapes can be made safe at moderate cost if metal strips are riveted across the vertical portions of the stairs and if a light sheet iron covering is erected over the length of the staircase. It makes a rather poor impression upon a visitor when he learns that the fire escapes are not used at fire drills or dismissals. Failing the use of spiral fire escapes or some better type, which should have been installed years ago, it would appear to be good policy to make the existing structures serve their purpose at least during such time as the non-fireproof schools are used.

See Table XVIII which follows:

TABLE XVIII.

PHYSICAL STATISTICS OF AKRON SCHOOLS

	SCHOOL	TYPE	Date of Last Addition	Number of Rooms Used
A.	Central High	Partially fireproof	1902	35
B.	South High	Fireproof, modern	1911	46
C.	West High	Fireproof, modern	1914	50
1.	Allen	Not fireproof, gable	1893	16
2.	Bowen	Fireproof, modern	1916	18
3.	Brittain	Not fireproof, country	189..	4
4.	Bryan	Partially fireproof	1912	20
5.	Caldwell	Part fireproof	1906	7
6.	Crosby	Not fireproof, gable	1893	13
7.	Forest Hill	Part fireproof	1914	4
8.	F. H. Mason	Fireproof, modern	1913	18
9.	Fraunfelter	Partially fireproof	1904	15
10.	Goodyear Heights	Not fireproof, country	1913	4
11.	Grace	Not fireproof, gable	1890	11
12.	Henry	Not fireproof, gable	1894	13
13.	Howe	Not fireproof, gable	1895	22
14.	Jennings	Fireproof, modern	1916	22
15.	Kent	Not fireproof, gable	1897	16
16.	Lane	Partially fireproof, composite	1913	30
17.	Leggett	Partially fireproof, composite	1912	24
18.	Lincoln	Fireproof, modern	1910	15
19.	Miller	Partially fireproof, composite	1915	32
20.	Perkins Normal	Not fireproof, gable	1900	6
21.	Portage Path	Fireproof, modern	1916	22
22.	Robinson	Fireproof, modern	1916	30
23.	S. Findley	Partially fireproof	1905	20
24.	Spicer	Not fireproof, gable	1897	17
25.	Merriman	Not fireproof, country	188..	1
26.	Lovers' Lane	Not fireproof, country	1881	1
27.	Oak Grove	Not fireproof, country	1916	2
28.	Triplett	Not fireproof, country	188..	2

6. Heating and Ventilating Plants—Summary of Inspection.

Fifteen schools have fairly satisfactory heating and ventilating systems. One objection to all school heating and ventilating systems inspected is the complete absence of **adequate** humidifying apparatus. Even in those schools where some attempt has been made to moisten the air, actual tests in the class-room proved that the provision made was inadequate. In view of the harmful effects of dry, hot air upon the respiratory systems of teachers and children it is to be hoped that the Board of Education will take immediate steps to improve the quality of the air in the schools, adopting or adjusting to local conditions methods which have proved satisfactory elsewhere.

The other most serious defect is the failure to cope adequately with the dust and smoke nuisances. In 15 schools the fresh air intake is at or below the ground level and in 4 others 4 feet or less above it. Wherever there is mechanical ventilation this results not only in drawing in air with a heavy smoke content but also dust from the street or grounds more or less laden with disease germs. None of the schools inspected reported air-washing apparatus at the time of inspection, although a temporary air-cleaning device has since been

installed at one school. If Akron is to continue its policy of practically unlimited pollution of the air by smoke from factories and residences, it must do something to purify it for the children during school hours at least. The Pittsburgh studies on the smoke nuisance show conclusively that smoke is an irritant to the lining of the respiratory passages and that smoke, as well as dust, are predisposing causes of disease. In his introduction to the Mellon Institute "Papers on the Influence of Smoke on Health," Dr. White summarizes the results as follows: "In simple terms, the smokier the atmosphere, the more colds and bronchitis."

It is evident that purifying the air supplied to school-rooms cannot remove the danger, if, while at home and on the street, the children are compelled to breathe the vitiated air. It would seem reasonable that while money spent on washing apparatus in the schools would do much to improve the physical and, therefore, the mental efficiency of teachers and children, a like amount spent on the reduction of the smoke nuisance at its source would do infinitely more both for adults and children. Here is an avenue for co-operation between the city, the Board of Education and the University. The Mellon Institute of Industrial Research and School of Specific Industries has published nine monographs* summing up the results of its investigations. These have resulted in greatly improved conditions in Pittsburgh and point the way for Akron.

*Outline of the Smoke Investigation.
Bibliography of Smoke and Smoke Prevention.
Psychological Aspects of the Problem of Atmospheric Smoke Pollution.
The Economic Cost of the Smoke Nuisance to Pittsburgh.
The Meteorological Aspect of the Smoke Problem.
Papers on the Effect of Smoke on Building Materials.
The Effect of the Soot in Smoke on Vegetation.
Some Engineering Phases of Pittsburgh's Smoke Problem.
Papers on the Influence of Smoke on Health.

The details of the ventilation and heating of the Akron schools appear in Chapter II of Part "B" in connection with investigations of the individual rooms. Actual class-room tests are the only basis for estimating in practice the working efficiency of heating and ventilating systems, no matter how perfect they may be theoretically.

Below is a schedule of defects actually observed in the Akron schools:

SCHEDULE OF DEFECTS ACTUALLY OBSERVED—HEATING AND VENTILATING.

Central High School—Reported to be inadequate to heat building.

Allen School—Auxiliary furnaces and ventilating fan had to close down for a day during the cold weather, due to low pressure. Difficulties with air calculation reported by several teachers.

Bowen School—Faulty location of several thermostats caused trouble in regulating room temperature.

Brittain School—Unjacketed stove in old building.

Caldwell School—Faulty location of ventilating inlets in portion of building (floor level). Large hot-air duct runs directly across ceiling of Kindergarten room.

F. H. Mason School—Defective location of valves makes it necessary to notify janitor personally of any needed regulation of room temperatures.

Fraunfelter School—Complaints as to quality of air in two rooms. Odor of smoke noticed in one room.

Goodyear Heights—Stoves are not properly "jacketed."

Grace School—Facilities reported to be inadequate.

Howe School—Air for ventilating system being drawn partly from cellar at time of visit.

Jennings School—Temperatures too high. Principal's office 89° and adjoining class-rooms 74° at time of visit. Coal dust in fan room (See plate I).

Kent School—Janitor unfamiliar with ventilating arrangements; temperature regulation difficult in portions of building.

Lane School—Temperature regulation defective in four rooms; soot deposits near air inlets; deficient gas pressure during cold snap; excessive temperature in one of the attached "barrack" buildings due to unjacketed stove and poor regulation.

Leggett School—Trouble with smoke, due to insufficient height of chimney; heavy deposits of soot near room inlets; "back-draft" at night due to lack of proper damper facilities.

Miller School—Trouble with smoke; heavy soot deposits near room inlets.

Perkins Normal School—Defective operation, causing a water pipe to freeze and burst one morning; inconvenient arrangement of boiler; odors in rooms.

Portage Path School—Thermostats reported to register incorrectly; soot deposits; smoke noticed in three rooms during time of visit; defective location of fresh air intake (now being remedied); lack of dampers to prevent "back-drafts."

Robinson School—Down-drafts and smoke when wind is unfavorable.

Samuel Findley School—Insufficient number of coils for heating air reported; hard to keep warm in coldest weather; gas pressure for fan deficient during cold snap.

Spicer Schools—Insufficient radiating surface reported; closed once during cold snap due to frozen steam pipes; one extreme example of bad ventilating arrangements in a class-room.

Country Schools—Unjacketed stoves at Lovers' Lane and portion of Triplett.

The advantage of continuous comparative records of the cost of heating and ventilating the various schools is obvious. Schools of

similar age, construction and size should have similar costs, and the differences between dissimilar schools should be readily explainable. Such comparative records are necessary for the adequate control of janitorial service.

The table and chart which follow set forth the fuel costs for 1915-1916 for some schools. It will be noticed that the unit fuel costs for the newest structures are the lowest, and for the older schools, the highest.

TABLE XIX.

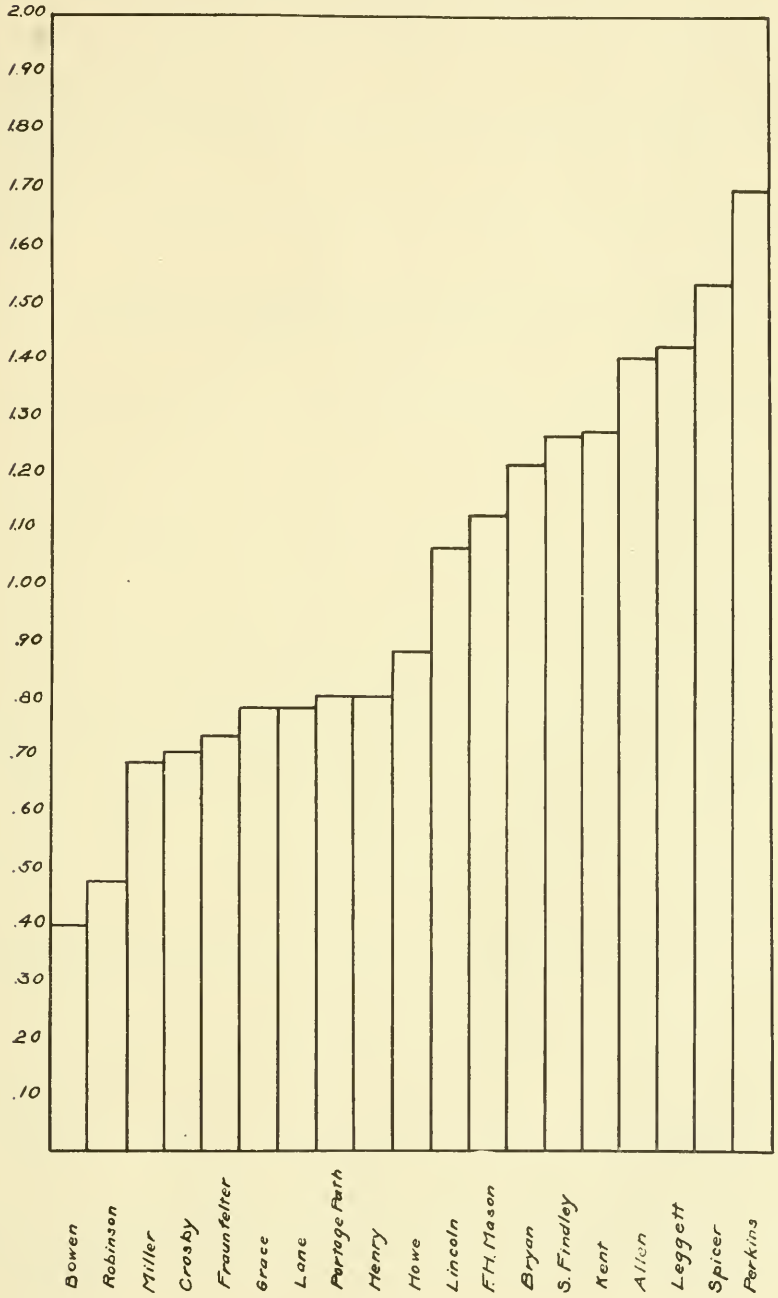
COMPARATIVE FUEL COSTS IN AKRON SCHOOLS 1915-1916

(Arranged according to least Comparative Cost.)

SCHOOL	Cubic Feet of Space Heated*	Type of Plant	Cost of Fuel 1915-1916	Cost of Fuel per 1000 Ft. of Space Heated
Bowen	520,450	Mech. Blast	$206.57	$0.40
Robinson	338,236	Mech. Blast		
Robinson—Annex	317,100	Mech. Blast	317.33	0.48
Miller	397,950	Mech. Blast		
Miller Annex	242,165	Mech. Blast	443.29	0.69
Crosby	517,770	Furnaces	369.01	0.71
Fraunfelter	512,890	Mech. Blast	381.16	0.74
Grace	361,560	Furnaces	285.48	0.79
Lane	313,820	Mech. Blast		
Lane—Annex	276,956	Mech. Blast	580.84	0.79
Portage Path	213,019	Mech. Blast		
Portage Path—Annex	301,948	Mech. Blast	416.83	0.81
Henry	542,440	Furnaces	440.57	0.81
Howe	453,550	Furnaces		
Howe—Annex	179,193	Mech. Blast	560.82	0.89
Lincoln	338,235	Mech. Blast	363.09	1.07
F. H. Mason	471,203	Mech. Blast	530.40	1.13
Bryan (old)	156,676	Furnaces		
Bryan—Annex	242,165	Mech. Blast	488.41	1.22
S. Findley	62,088	Furnaces		
S. Findley—Annex	340,480	Steam Blast	511.69	1.27
Kent	420,000	Furnaces—Steam	538.46	1.28
Allen	283,000	Furnaces	398.04	1.41
Leggett (old)	156,676	Furnaces		
Leggett—Annex	367,028	Mech. Blast	750.10	1.43
Spicer	376,974	Furnace—Steam	580.97	1.54
Perkins (old)	173,315	Furnace—Steam		
Perkins—Normal	164,021	Mech. Blast	573.67	1.70

* Includes basement space where basements are used.

Comparative Cost of Fuel Per 1,000 Cu. Ft. of Space Heated During Year 1915-1916—For 19 Schools



7. General Sanitation—Summary of Inspection.

As unsatisfactory progress of pupils in school can often be traced to insanitary living or school conditions, a painstaking study was made of sanitary conditions in the schools of Akron.

The schools where the general insanitary conditions (other than those connected with ventilation) were found were few in number; and in only one school was there found all four of the cardinal defects —inadequacy, defective type, poor lighting and disagreeable odors.

Below is a summary schedule of the main sanitary defects actually observed in Akron schools:

SCHEDULE OF DEFECTS ACTUALLY OBSERVED— GENERAL SANITATION.

Central High School—Facilities inadequate; lighting and ventilation in boys' toilet room in old building is poor; type of fixtures in this room also defective.

South High School—Evidence of insufficient cleaning of boys' room on first floor; operation apparently defective; partitions defaced.

West High School—Indications of imperfect cleaning of toilet rooms; ventilation not the best.

Allen School—Equipment not up to date; poor light in one of the toilet rooms; no outside light for emergency room on second floor.

Bowen School—Calculation indicates that toilet provisions are not sufficient; trouble with some of the fixtures. (At time of inspection this building had not been accepted by Board of Education.)

Bryan School—Insufficient light for girls' toilet room in old building; equipment not up to date; ventilation not good. Bad air in boys' room in new building. Untidy.

Caldwell School—Outside buildings. Clean but evidence of infrequent flushing.

Crosby School—Fixtures not modern; air and light poor in boys' room. No drinking fountain; no cabinets for individual drinking cups.

Forest Hill School—Outside accommodations about one hundred feet from school. No running water in school.

F. H. Mason School—No criticism.

Fraunfelter School—Air and light in boys' room poor; facilities inadequate.

Goodyear Heights—Bad design and location of toilet facilities. No fountains, and no cabinet for individual drinking cups.

Grace School—Facilities inadequate and outside building. No fountains, although suitable cabinets are provided for individual drinking cups.

Henry School—Inadequate toilet facilities according to State Code. Fixtures not modern; poor light and drainage in boys' room.

Howe School—Equipment fairly modern but boys' room very deficient in light.

Jennings School—No criticism.

Kent School—Equipment not modern; drainage and lighting in girls' room is poor. Drainage in boys' room is bad and floor uneven. Location bad.

Lane School—Bad example of interior emergency room. Water pressure not sufficient to keep drinking fountains on first and second floors in full operation. Undesirable (cup) type of bubbler is used.

Leggett School—Air in boys' toilet room bad; evidence of lack of thoroughness in cleaning. Considerable trouble with water pressure necessitating hand operation of flushing equipment. (Investigator informed that this condition would be remedied in a few days.) Defective water pressure also prevents constant operation of drinking fountains on second floor.

Lincoln School—No criticism except that type of drinking fountain is not the most desirable.

Miller School—Toilet equipment in old building not of latest design. Air in boys' toilet room in old building not good. Type of bubbler not the best.

Perkins Normal School—All toilet facilities except for teaching staff are in new building. Fixtures not modern and lighting insufficient. No drinking fountains in building and one very objectionable drinking faucet installed in boys' basement. (This faucet is so arranged that in order to get a drink the boys must press their lips upon the outside surface.) Evidence of lack of thoroughness in cleaning new building.

Portage Path School—Criticism applies chiefly to type of drinking fountain which encourages children to press their lips upon surface.

Robinson School—Only criticism applies to water pressure which is sometimes insufficient to operate drinking fountains and sanitary equipment.

Samuel Findley School—No toilet facilities in old building. Air in toilet rooms in new building not satisfactory, indicating poor cleaning; two fixtures out of order.

Spicer School—No heat in toilet rooms at time of inspection. Seven fixtures in boys' room out of order; bad air and untidy appearance.

Country Schools—All of these schools have primitive facilities in outside building. Conditions at Lovers' Lane and Triplett bad. At only one of these schools (Merriman) was use of chloride of lime evident.

It is to be hoped that the authorities will not permit the more serious defects to remain against the record of the schools which are otherwise unobjectionable from the standpoint of the health of the children.

It seems unnecessary to call attention in this report to the sanitary provisions at the Grace School. **This is the sole remaining example in Akron of a city school in modern surroundings with outside closets. In 1900, according to information received, conditions were actually reversed, only one school having modern sanitary conveniences.**

On April 4, 1916, residents of the neighborhood petitioned the Board of Education to abolish the outside closets at Grace School, but the Board replied (April 21) that this improvement must wait until a proposed annex was built.

This would indicate a lack of proper emphasis upon school sanitation. Just why it is necessary to wait for an entire new annex before remedying this situation is hard to understand. Certainly a temporary basement extension could be made which would answer the purpose until the annex is built. At the very least, the present structures could be altered so as to provide heat, light and running water.

A knowledge of comparative unit cleaning costs is desirable for any school system in order to effect proper control of janitorial services. The table which follows is, of course, only an approximation as it is based on the assumption that half the cost of the janitorial service might fairly be charged to cleaning, but for comparative purposes the figures are sufficiently accurate. A proper accounting system, based on time-sheets for the janitors, would supply absolutely correct costs.

TABLE XX.

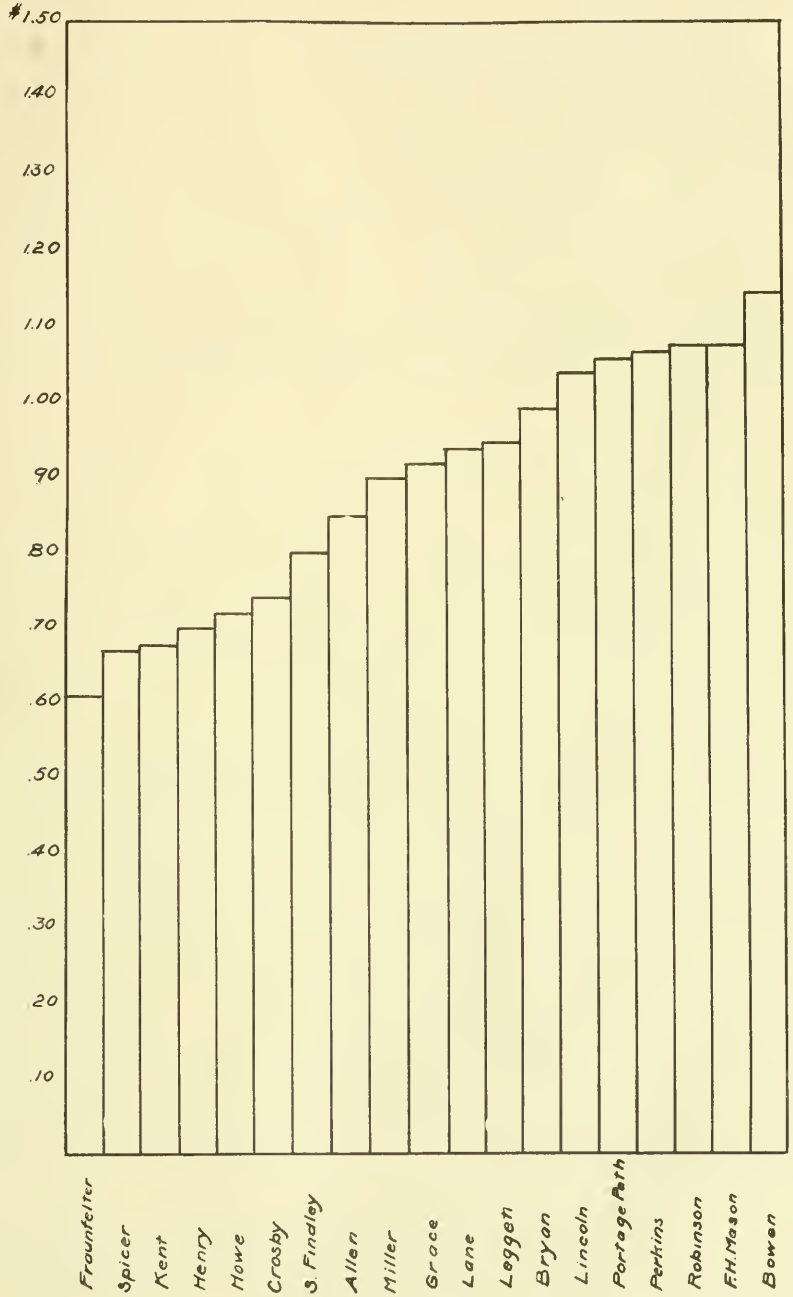
COMPARATIVE COST OF CLEANING, 1916-1917

(Arranged according to Least Comparative Cost)

SCHOOL	Estimated Time*	One-Half Cost of Janitorial Service	Comparative Hourly Cost of Cleaning
Fraunfelter	1,000 Hours	$ 606.80	$0.61
Spicer	1,090 Hours	735.00	0.67
Kent	1,070 Hours	727.00	0.68
Henry	864 Hours	609.80	0.70
Howe	1,455 Hours	1,042.50	0.72
Crosby	820 Hours	605.00	0.74
S. Findley	1,058 Hours	852.20	0.80
Allen	763 Hours	647.50	0.85
Miller	1,620 Hours	1,455.00	0.90
Grace	590 Hours	542.40	0.92
Lane	1,320 Hours	1,258.10	0.94
Leggett	1,068 Hours	1,020.00	0.95
Bryan	762 Hours	866.50	0.99
Lincoln	664 Hours	690.00	1.04
Portage Path	985 Hours	1,047.00	1.06
Perkins Normal	825 Hours	880.00	1.07
Robinson	1,280 Hours	1,387.00	1.08
F. H. Mason	770 Hours	835.00	1.08
Bowen	780 Hours	900.00	1.15

* This is the approximate number of hours estimated to be necessary to clean the building during the school season. Class-rooms, halls, basements and windows are included.

Comparative Hourly Cost of Cleaning 19 Schools During 1915-1916



II. VENTILATION AND HEATING.

1. General Discussion.

Recent studies in ventilation, especially those conducted at Albany, have upset practically all previously accepted ideas as to efficient ventilation. All modern ventilating systems are based on the "chemical" theory that good ventilation consists in the removal of all surplus of carbon-dioxide from the air so as to maintain at all times in the inside air the same proportion of this gas as is found in the outside atmosphere. The importance of equable temperature has also been recognized and, in some cases, the desirability of maintaining the relative moisture of the air in school-rooms at a point fairly equivalent to that outside the class-rooms. Equable temperature and normal humidity, particularly the latter, have in practice been considered as subsidiary factors indirectly related to good ventilation, but not constituent elements of it.

Prof. Frederick S. Lee writes as follows in Science, August 11, 1916:

> "As one result of these experiments (at Albany) there has been a great change in our ideas concerning the physiological action of atmospheric conditions. It had long been the custom to ascribe to chemical components of the atmosphere the bad effects of living in air that had already been breathed by human beings. The discovery of oxygen and of carbon-dioxide early in the last century gave a great stimulus to this notion, and it became firmly fixed in the minds of chemists, physiologists and physicians, as well as the educated masses, that air that had been breathed was vitiated chemically and rendered unfit for human use by the lack of oxygen, the accumulation of carbon dioxide, and of the presence of an organic poison of unknown nature. No sooner had this notion become widely accepted than the laboratories began to demonstrate the inadequacy of the supposed proof of the notion, and—to cut a long story short—we now know that, except under very unusual circumstances, **the harmfulness of respired air is not due to its chemical components. By respiration oxygen can not be reduced to a deleterious proportion nor can carbon dioxide be produced in deleterious quantity, except under very unusual conditions of living; and the organic poison of respiration has no real existence. The harmfulness of living in confined air is found in certain physical rather than chemical features—the air is too warm, too moist, and too still; and if it has not these physical features it is not harmful.**
>
> We all have sat in crowded assemblies; we all have experienced the hot, humid, still days of an American summer. We all know the effects of such air on our sensations—the general bodily discomfort, the sleepiness, the flushed face, the headache, the disin-

clination to think or to act, the general debility, the longing for relief. But sensations are an inadequate measure of bodily conditions. In what respects is hot, humid, still air harmful? To answer this question we must consult the records of many researches, chiefly on human beings, but partly on animals, that have been undertaken since Hermans more than thirty years ago, observed that in crowded theatres and churches his own bodily temperature rose. The most recent of these researches is that of the New York State Commission on Ventilation, which has been in progress for the past two and one-half years and is not yet completed."

The work of this Commission has, however, demonstrated that the percentage of carbon dioxide in the air is a comparatively unimportant factor, but that good ventilation depends mainly on the following **physical,** not chemical factors:

Temperature not too high and not too low;

Moisture not too great and not too little;

Continuous movement in the air, not too violent and not too slight.

Disregard of these factors leads to impaired ability to do work, physical discomfort and liability to disease. It has been shown that very often the operation of an electric fan in a room with an oppressive atmosphere, without change in the chemical quality of the air, has been sufficient to restore the working efficiency of the occupants of the room.

It is not necessary here to enter into a discussion of the scientific basis of the "physical" theory of ventilation. It is sufficient to state that while the rapid changing of the air in class-rooms is desirable, the elements of correct temperature, normal moisture content and the existence of currents in all parts of class-rooms are essentials of good ventilation. **Bearing this in mind, it is evident that even in buildings where there is no mechanical system, there can be no excuse for poor ventilation. Open windows, electric fans and evaporation pans can work wonders.**

Studies as to the relative efficiency of different systems as shown by their effect upon the health and working efficiency of occupants of school buildings have not been made. On account of the fact that home conditions vary, that the time spent in school daily is only a fractional part of the day, that seasons differ, and that epidemics are of frequent occurrence, such tests would need to be carefully planned and spread over a long period of time. As such tests, under actual working conditions, would be the only satisfactory tests, an attempt should be made to carry them out if possible in Akron. The city has many types of buildings and several types of heating and ventilation. The tests would be long but not difficult.

The tabulation below of information supplied by the principals indicates how the correlation between attendance (largely a matter of health) and the system of ventilation might be tested, particularly in buildings containing two different types of ventilation:

ATTENDANCE OF TEACHERS AND PUPILS

in percentage groups, for the two main types of ventilation in the older and newer structures.

Type of Ventilation	No. of Rooms	Below 80%	80-84%	85-89%	90-94%	95-99%	100%
			Teachers' Attendance				
Gravity—Old Building	88	1.13%	3.4%	5.7 %	6.82%	7.95%	75 %
Gravity—New Building	31	3.2	....	.....	3.2	22.6	71
Fan—Old Building	69	5.8	....	5.8	7.25	18.84	62.31
Fan—New Building	227	3.08	.9	1.31	3.08	14.1	77.53
Open Window Rooms	2	.....	....	.....	.....	.....	100
			Pupils' Attendance				
Gravity—Old Building	88	.....	2.27%	10.23%	53.4 %	34.1 %	.....
Gravity—New Building	31	.....	6.45	9.68	54.84	29.03	.....
Fan—Old Building	69	.....	.....	5.8	43.48	50.72	.....
Fan—New Building	227	.....	.....	5.29	51.1	43.61	.....
Open Window Rooms	2	.....	.....	.....	100	.....	.....

The record of the two open window rooms is noteworthy, as well as the comparative records of the gravity systems in the older schools and the fan systems in the newer schools. While the basis of this table is, of course, too narrow for drawing conclusions, the prospect of arriving at definite conclusions—considering attendance, health, scholastic records, athletic records, etc., in relation to temperature, humidity, cleanness of air, etc.—seems encouraging.

2. Location of Air Inlets and Outlets in Class-rooms.

The State law* requires that inlets shall not be less than 8 feet from the floor and that the bottom of outlets shall not be more than 2 inches from the floor. The reason for these provisions is obvious. In order to get good circulation of air it is necessary that inlets and outlets shall be at considerable distances from one another and that the returning air shall find its way readily to the outlet. Of 438 class-rooms, 269 had their outlets at the floor, 163 had their outlets above the floor 6 inches or less (mostly less than 2 inches), 5 had outlets between 7 and 12 inches from the floor and only 1 over a foot from the floor. Considering the number of old buildings in Akron this is an excellent record.

Of 446 class-rooms, the distance between the bottom of the inlet and the bottom of the outlet was less than 6 feet in 43 rooms, from 6 to 8 feet in 344 rooms, and over 8 feet in 59 rooms. This record is not so good. The placing of hot-air inlets at the floor level is always ob-

*Throughout this report the revision quoted is that of 1915.

jectionable, except in the case of subsidiary inlets for foot warmers. Reports state that 16 rooms have inlets at the floor level and 38, five inches or less above the floor, not counting temporary annexes. These large figures may partly be due to misunderstanding, but some cases were actually noted by the observer. All cases observed, however, were in the old buildings.

As will be pointed out later, more than one inlet and more than one outlet are usually required in order to secure good circulation of air and to obviate strong currents of hot air in rooms as large as classrooms. The installation of extra inlets and outlets would largely offset the defects noted above.

3. Floor Space per Pupil.

The State standards require 16 square feet per pupil in the primary grades, 18 in the grammar grades, and 20 in the High School. These provisions are no longer regarded as so important as formerly, but it is interesting to note that in Akron the average space per seat is 18 square feet, that some schools provide as high as 24 feet, and that only one falls as low as 14.3. **The space per pupil in actual attendance is, of course, much higher.** Below is a table showing the averages for 27 of the school buildings (not by room but for the school buildings as units):

FLOOR AREA PER SEAT

SCHOOL	Floor Area	Number of Seats	Floor Area per Seat	
Central High	24,056	1,198	20.2	
West High	25,365	1,412	18.0	—Floor area of one
South High	22,418	1,146	19.6	room and No. of seats
Allen	10,246	652	15.9	in one room not given.
Bowen	11,440	564	20.3	
Brittain	4,518	188	24.0	
Bryan	14,038	828	17.0	
Caldwell	5,500	315	14.3	
Crosby	9,917	630	15.7	—Floor area not given
Forest Hill	3,743	230	16.3	for one room.
Frank H. Mason	12,359	844	14.6	
Fraunfelter	11,543	627	18.4	
Goodyear	2,880	154	18.7	—No. of seats not given
Grace	8,995	527	17.1	for one room.
Henry	11,216	615	18.2	
Howe	20,878	1,083	19.3	
Jennings	13,540	754	18.0	
Kent	13,586	718	18.9	
Lane	26,469	1,414	18.7	
Leggett	17,322	1,022	16.9	
Lincoln	11,979	671	17.8	
Miller	31,595	1,515	20.8	
Perkins Normal	9,687	652	14.9	—Floor area not given
Portage Path	17,213	931	18.5	for one room.
Robinson	24,235	1,333	18.2	
Samuel Findley	13,844	839	16.5	
Spicer	15,414	816	18.9	
	393,996	21,678	18.0	

Note: Special rooms, such as Gymnasium, Kindergarten, Domestic Science, Sewing, Drawing, Shops, etc. not included in above.

4. Cubic Contents of Air Space per Sitting.

The State code requires for primary grades per pupil 200 cubic feet, for grammar grades 225 cubic feet, for High Schools 250 cubic feet. These provisions cannot be regarded as of extreme importance in the light of recent discoveries, **but it is gratifying to know that all new school structures in Akron are adequate in this respect and that all buildings have sufficient air space, other conditions being favorable.** The following table summarizes the facts, but it should again be noted that not all seats are occupied all the time, so that probably under actual conditions nearly every regular school-room in Akron, whether in old or new buildings, meets the requirements of the State law.

CUBIC FEET OF AIR SPACE PER SEAT.

26 rooms have less than 170 cubic feet per seat.
18 rooms have between 170-179 cubic feet per seat.
26 rooms have between 180-189 cubic feet per seat.
22 rooms have between 190-199 cubic feet per seat.
30 rooms have between 200-209 cubic feet per seat.
35 rooms have between 210-219 cubic feet per seat.
60 rooms have between 220-229 cubic feet per seat.
34 rooms have between 230-239 cubic feet per seat.
49 rooms have between 240-249 cubic feet per seat.
50 rooms have between 250-259 cubic feet per seat.
27 rooms have between 260-269 cubic feet per seat.
26 rooms have between 270-279 cubic feet per seat.
65 rooms have 280 or over cubic feet per seat.

5. Quantity of Air Supplied per Minute per Pupil.

Excluding corridors, halls and storage closets, the State law requires the complete change of the air in rooms occupied by pupils at least six times per hour. In a room 25 x 30 x 12, housing 40 pupils, this would mean 22½ cubic feet per pupil. In a room 14 x 25 x 34 1/3, with 40 pupils, it would mean about 30 cubic feet per pupil. Thirty cubic feet is the standard usually set by hygienists accepting the "chemical" theory of ventilation. While the State standard is based on obsolescent theory it is still State law, **and it is interesting to note that Akron meets and surpasses State standards in this respect.** In some cases, in "muggy" weather, rooms ventilated and heated by the old-fashioned gravity system may fall somewhat below the standard, but in such weather the use of window ventilation—with draft deflectors if necessary—and electric fans would put every room in the Akron schools above suspicion as to the adequacy of the air supplied per pupil. Many thoughtful persons are coming to believe that the best ventilation can be so secured in all weathers. Until the question of ventilation is settled on a scientific basis, we shall not know just how much of the expen-

sive modern apparatus for supplying to the class-room that good air which exists in unlimited quantities just outside, is really essential.

The figures below, based on actual tests, indicate that all systems in use in Akron, other than gravity systems, supply about twice as much air as State or scientific standards require.

Gravity systems supplied, on the average, 29.1 cu. ft. per pupil per minute.

Mechanical blast systems supplied, on the average, 56.6 cu. ft. per pupil per minute.

Various systems using steam supplied, on the average, 67.5 cu. ft. per pupil per minute.

While it is true that air amounting to at least six times their content enters and leaves the class-rooms every hour, it is not true that the air in all parts of the school-rooms is so frequently changed. Indications were not lacking that there are air pockets and comparatively dead spaces in many class-rooms. With only one inlet and one outlet per room, and with currents of hot air shot into the rooms at a rapid rate, it could not be otherwise. The air in the spaces just back of the barrier shutting off the cloak-rooms from the regular class-rooms in some buildings is probably not subject to rapid change. This does not affect the children directly but must affect the condition of the wraps. The difficulty, if any, could be obviated by putting open grill-work near the bottoms of the barriers. Stuffy spots in the regular class-rooms could always be dealt with by the use of electric fans. In class-rooms not now provided with deflectors at the intakes, conditions would be improved by their installation.

6. Temperature.

Careful tests were made of temperatures in individual class-rooms. First the temperature outside of the fresh air intake or in the fan room was taken, then the temperature at the inlet of the class-room, then at the middle, and lastly at the outlet. A study of Table XXI, which follows, will show that many of the temperatures of the air coming into class-rooms and even at the centers of class-rooms are excessive.

TABLE XXI.

TEMPERATURE TESTS IN INDIVIDUAL CLASS-ROOMS

SCHOOL and Room Nos.	Temperature outside intake or in fan room		Temperature at Inlet	Temperature at Centre of Room	Temperature at Outlet
	At Beginning of Observation	At Close of Observation			
Jennings	37.5	40			
7	....	....	93	72	72
11	....	....	93	74.5	74.5
14	....	....	98	70	70
21	....	....	95	78.5	80
23	....	....	93	77	78
15	....	....	68	72	71
18	....	....	86	75.5	75
West High	32	34			
45	....	....	70	71	72
50	....	....	82	70	70
39	....	....	69	71	70
34	....	....	68	70	70
30	....	....	71	75	75
22	....	....	70	74	74
25	....	....	72	73	72
S. Findley	56	58			
8	....	....	86	71	69
9	....	....	67.5	67	65
12	....	....	84	69	67.5
5	....	....	80.5	68	66.5
4	....	....	71	70	69.5
West Basement	....	....	69.5	71	69.5
Henry	36	36			
9	....	....	100	69	69
3	....	....	115	71	73 & 69
4	....	....	121	68	64 & 66
12	....	....	104 & 85	71	73
8	....	....	104	77	74 & 73
6	....	....	106	72	71 & 69
13 (Heated by gas)	Front: 71; Center: 70; Window: 71.				
Spicer	33.8	....			
7	....	....	78.2	71	71
8	....	....	89.2	71.5	71.2
17	....	....	81.5	72.5	73
15	....	....	90	73.8	72.1
16	....	....	96	73.8	70.8
Leggett (Feb. 23)	....	48			
5	....	....	156	74	72
24	....	....	83	74	75
14	....	....	74	71	70
13	....	....	70	69.5	73
17	....	....	68.5	69	69

TABLE XXI—Continued.

TEMPERATURE TESTS IN INDIVIDUAL CLASS-ROOMS

SCHOOL and Room Nos.	Temperature outside intake or in fan room		Temperature at Inlet	Temperature at Centre of Room	Temperature at Outlet
	At Beginning of Observation	At Close of Observation			
Leggett (March 6)	12	16			
3	....	....	187	71	68
2	....	....	160	74	70
5	....	....	201	68	68
8	....	....	162	80	75
Bowen	28.5	30.5			
6	....	....	66	69	68
7	....	....	103	77	70
10	....	....	78	70	68
13	....	....	94	70	69
Portage Path	33	33			
10	....	....	81	75	72
13	....	....	70	71	70
8	....	....	70	71	70
17	....	....	82	71	71
31	....	....	83	72	72
20	....	....	92	75	74
23	....	....	77	72	72
26	....	....	77	77	76

When it is borne in mind that increasing the temperature of air increases its "hunger" for water or its relative dryness, the effect on the air passages of teachers and pupils is obvious. This topic will be further discussed under "Humidity."

More inlets and more outlets would reduce the temperature at the inlets necessary to heat the rooms and would lessen the bad effects of hot dry currents of air moving at great speed.

It will further be noted that a large number of the temperatures recorded in the center of the rooms were over 70 degrees, whereas class-room temperatures should be not higher than 70 degrees, or, better still, 68 degrees. Temperatures over 72 degrees are certainly harmful to teachers or children submitted to them for any length of time.

As a further check on class-room temperatures, teachers were asked, through the Superintendent, to supply temperature data during two weeks in February, 1917. These were cheerfully supplied and are tabulated in Table XXII which follows. Temperatures between 68 and 72 were considered as normal, although 70 is generally regarded as the maximum allowable temperature. This was done to allow for slight unavoidable fluctuations.

TABLE XXII

SUMMARY OF TEMPERATURE OBSERVATIONS MADE BY TEACHERS

(February, 1917)

SCHOOL	Type of Plant	Total No. of Observations	Number of Observations: Below Normal	Normal 68-72	Above Normal	Highest Temp. Recorded	Lowest Temp. Recorded	Average Temperature
Central High	Steam	1232	80	895	257	84	55	71
South High	Steam	1404	120	1130	147	82	56	70.3
West High	Steam	1897	387	1443	114	80	46	69.2
Allen	Mech. Blast	654	72	498	84	80	55	70.3
Bowen	Mech. Blast	633	59	402	172	80	40	70.1
Brittain	Stoves	172	20	113	39	90	45	70.6
Bryan	Gravity and Mech. Blast	884	70	723	72	80	60	70
Caldwell	Gravity and Mech. Blast	360	103	196	61	88	39	68.6
Crosby	Gravity	477	96	361	20	76	44	69.2
Findley	Steam	743	157	491	95	80	45	69.1
Forest Hill	Furnace	200	45	144	11	75	42	67.2
Fraunfelter	Mech. Blast	604	55	415	134	88	42	70.8
Grace	Gravity	481	142	319	14	76	54	67.5
Goodyear	Stoves	150	39	108	3	75	34	65.6
Henry	Gravity	518	104	322	92	83	49	69.3
Howe	Gravity and Mech. Blast	980	191	649	140	82	50	69.2
Jennings	Gravity and Mech. Blast	928	90	396	429	80	60	71.8
Kent	Gravity and Steam	688	89	450	150	82	50	70.2
Lane	Mech. Blast	1120	147	798	175	80	30	69.9
Leggett	Gravity and Mech. Blast	1016	104	718	195	88	40	70.3
Lincoln	Gravity and Mech. Blast	600	5	583	12	74	58	69.9
Mason	Gravity and Mech. Blast	720	62	627	33	75	58	69.5
Miller	Gravity and Mech. Blast	1320	100	1004	216	89	54	70.7
Perkins Normal	Gravity and Mech. Blast	618	117	445	54	76	34	68.9
Portage Path	Gravity and Mech. Blast	904	33	703	164	88	53	71
Robinson	Gravity and Mech. Blast	1197	48	1078	71	80	58	69.9
Spicer	Gravity and Steam	727	56	597	74	78	44	69.9
TOTALS		21,227	2,591	15,608	3,028			

Out of 27 schools, 19 recorded "highest" temperatures of over 80 degrees. The most moderate "highest" temperature recorded was 74 degrees. Twenty-five schools registered "lowest" temperatures below 60 degrees, and two at 60. The lowest temperature registered was 30 degrees and the highest 90.

7. Humidity.

The effect of excessive humidity in hastening fatigue and of insufficient humidity in causing headache, dryness of throat surfaces, and restlessness, is well known to teachers of experience. In Akron schools, instances of the second defect are found but none of the first.

According to the tabulation of the results of actual observations, the average humidity (degree of saturation) of air in the center of class-rooms observed for this purpose was 25.2. The gravity systems showed an average humidity of only 19.7; the non-steam using mechanical systems showed an average of 27.3; and the steam using systems, 28.5. These results are not strictly comparable as there were differences in outside temperatures and humidities. As compared with the amount of moisture in the outside air, however, all were much too low. Great differences in the degree of moisture in the outside air and school air, continued over a long period, tend to have a serious effect on the throat and bronchial passages. Several rooms were observed where children showed all the symptoms which arise from breathing over-heated dry air. Several teachers seemed to be suffering from the same causes. It was, of course, impossible to measure the results in such a short period of observation, even if it were desirable. **It is suggested that the Public School, Health and University authorities cooperate in a study of the effects of deficient humidity in class-room air. Such a study could not fail to reach important conclusions.**

The tables which follow (XXIII-A, B and C) show the degree of saturation of outside air with the degrees of saturation of the inside air after it had been passed through the various heating and ventilating systems. Humidity means simply the amount of water in a given volume of air compared with its capacity for holding water. In Akron schools, insufficient moisture is supplied to the air as it becomes heated to offset this increased capacity for holding moisture. **It therefore comes into the class-rooms more avid for water than the air outside, and therefore tries to get moisture from the contents of the room with which it comes in contact. We have all seen what such air does to furniture. We have not seen what it does to the tender mucous membrane of children's mouths and throats, which render up moisture much more readily than desks, maps or school books.**

TABLE XXIII-A.

RESULTS OF HUMIDITY TESTS

Gravity Systems

Date	School	Room No.	Humidity of Outside Air	Humidity in Class-Room	Loss in Relative Moisture	
					Actual	Loss per cent
1917						
Mar. 12	Henry	9	51%	23%	28%	54%
Mar. 12	Henry	3	51	22	29	53
Mar. 12	Henry	4	51	25	26	49
Mar. 12	Henry	12	51	22	29	53
Mar. 12	Henry	8	51	17	34	66
Mar. 12	Henry	6	51	18	33	67
Mar. 12	Henry	13*	51	40	11	20
Average per cent of Loss in Moisture						52%

* Room No. 13 heated by gas stove. Excluding figures for this room, average per cent of loss in moisture 57%.

TABLE XXIII-B.

RESULTS OF HUMIDITY TESTS

Mechanical Blast Systems

Date	School	Room No.	Humidity of Outside Air	Humidity in Class-Room	Loss in Relative Moisture	
					Actual	Loss per cent
1917						
Feb. 23	Leggett	24	83%	35%	48%	58%
Feb. 23	Leggett	14	83	38	45	54
Feb. 23	Leggett	13	83	38.5	44.5	54
Feb. 23	Leggett	17	83	42	41	50
Mar. 9	Portage Path	10	70	27	43	61
Mar. 9	Portage Path	13	70	25	45	60
Mar. 9	Portage Path	8	70	22	48	70
Mar. 9	Portage Path	17	70	20	50	71
Mar. 9	Portage Path	31	70	21	49	70
Mar. 9	Portage Path	20	70	21	49	70
Mar. 9	Portage Path	23	70	24	46	66
Mar. 9	Portage Path	26	70	26	44	63
Average per cent of Loss in Moisture						62%

TABLE XXIII-C.

RESULTS OF HUMIDITY TESTS

Split Steam Systems

Date	School	Room No.	Humidity of Outside Air	Humidity in Class-Room	Loss in Relative Moisture	
					Actual	Loss per cent
1917						
Feb. 26	S. Findley	8	63%	38%	25%	40%
Feb. 26	S. Findley	9	63	46	17	24
Feb. 26	S. Findley	12	63	45	18	25
Feb. 26	S. Findley	5	63	47	16	23
Feb. 26	S. Findley	4	63	50	13	21
Feb. 26	S. Findley	West Base't	63	49	14	22
Mar. 15	West High	45	63	30	33	52
Mar. 15	West High	50	63	24	39	38
Mar. 15	West High	39	63	23	40	63
Mar. 15	West High	34	63	20	43	68
Mar. 15	West High	30	63	18	45	71
Mar. 15	West High	22	63	20	43	58
Mar. 15	West High	25	63	20	43	58
Mar. 16	Jennings	7	57.5	21	36.5	64
Mar. 16	Jennings	11	57.5	20.5	37	64
Mar. 16	Jennings	14	57.5	20	37.5	65
Mar. 16	Jennings	21	57.5	17.5	40	70
Mar. 16	Jennings	23	57.5	17	40.5	71
Mar. 16	Jennings	15	57.5	23	34.5	60
Mar. 16	Jennings	18	57.5	21.5	36	63

Average per cent of Loss in Moisture 51%

It will be noted that in the gravity systems the air became 52% dryer, i. e. more able to take up water; in the mechanical blast systems 62%; and in the split steam systems 51%.

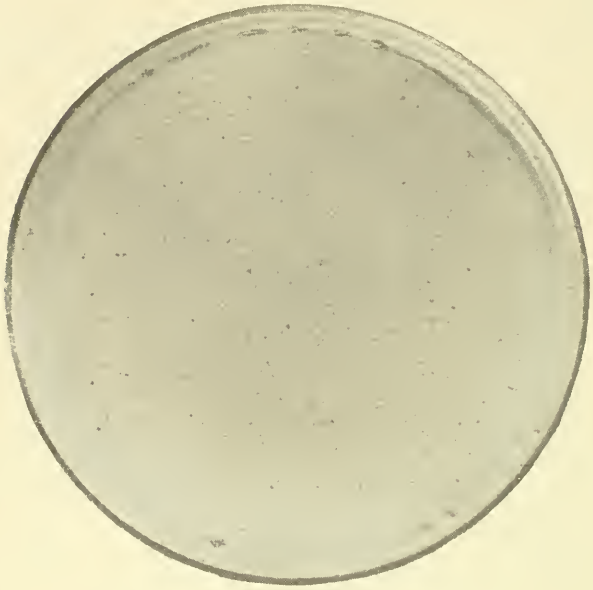
Unless it can be shown conclusively that arrangements can be made to properly humidify the air from mechanical blast systems, it is strongly recommended that no payments be made on contracts now outstanding for the installation of such systems, until tests over a considerable period have demonstrated their efficiency.

8. Dust and Smoke.

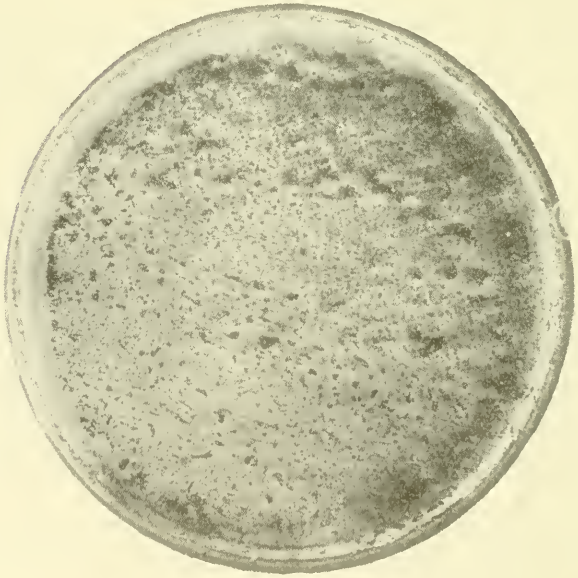
During the process of the study tests were made, by the standard method, of the amount of dust in the air of class-rooms. Petri dishes covered with gelatine were exposed, often in two different places, in each class-room tested. In most cases exposure was for a full day. Bacteriological tests were also made but as the results were not particularly significant they were discontinued. Occasional evidence of disease bacteria was discovered including some which may be regarded as the probable cause of throat infections. This fact, however, is not of great importance. The results of the dust tests are more significant, as irritation of the mucous membrane of throat, nose and bronchial tubes by smoke and dust may be a predisposing cause of serious infections.

The cuts which follow are reproductions of dust exposures taken in two schools.

Reproduction of Dust Exposure
Taken in the Fan Room of the Bowen School.
(Slightly enlarged.)



Reproduction of Dust Exposure
Taken in the Fan Room of the Jennings School.
(Slightly enlarged.)



In Table XXIV which follows are given estimates—made as carefully as possible by the aid of the microscope—of the number of particles on the various exposures. The numbers in Columns I, II and III represent the number of particles of three different sizes—all small—the third being the largest.

NOTE:

Standard of Measurement of Dust Particles.

Size I—less than 250 standard units, or .1 square millimeter.

Size II—between 250 and 1250 standard units, or between .1 and .5 square millimeters.

Size III—larger than 1250 standard units, or .5 square millimeters.

TABLE XXIV.

DUST PARTICLES IN SCHOOL AIR

School	Date	Room	Length of Exposure	Area Exposed (Sq. in.)	No. of Dust Particles		
					I.	II.	III.
	1917						
Spicer	Feb. 20	Intake	Day	19.35	200,400	18,000	0
Spicer	Feb. 20	7	1 hr.	19.35	37,600	0	0
Spicer	Feb. 20	8	1 hr.	19.35	70,000	400	400
Spicer	Feb. 20	17	1¾ hrs.	19.35	206,400	2,000	0
Spicer	Feb. 20	15	1¾ hrs.	19.35	87,600	3,200	0
Spicer	Feb. 20	16	1¾ hrs.	19.35	96,000	800	0
Leggett	Feb. 23	Intake	Day	19.35	264,000	1,200	0
Leggett	Feb. 23	5	Day	19.35	239,200	400	400
Leggett	Feb. 23	24	Day	19.35	185,600	0	0
Leggett	Feb. 23	14	Day	19.35	214,800	800	0
Leggett	Feb. 23	13	Day	19.35	238,000	0	0
Leggett	Feb. 23	17	Day	19.35	243,200	1,200	0
Leggett	Feb. 23	3	Day	19.35	220,800	0	0
Leggett	Feb. 23	8	Day	19.35	394,400	0	0
Leggett	Feb. 23	2	Day	19.35	242,000	0	0
S. Findley	Feb. 26	Intake	Day	19.35	2,328,000	400	0
S. Findley	Feb. 26	8	Day	19.35	582,400	0	0
S. Findley	Feb. 26	9	Day	19.35	748,800	800	0
S. Findley	Feb. 26	12	Day	19.35	620,400	0	0
S. Findley	Feb. 26	5	Day	19.35	718,400	400	0
S. Findley	Feb. 26	4	Day	19.35	620,800	400	400
S. Findley	Feb. 26	West Basement	Day	19.35	715,200	0	0
Bowen	Mar. 2	Intake	Day	19.35	3,676,000	2,800	8,000
Bowen	Mar. 2	6	Day	19.35	68,400	0	0
Bowen	Mar. 2	13	Day	19.35	249,200	400	0
Bowen	Mar. 2	18	Day	19.35	355,200	1,200	0
Bowen	Mar. 2	7	Day	19.35	419,600	800	0
Bowen	Mar. 2	2	Day	19.35	473,600	1,600	0
Portage Path	Mar. 9	Inside of new intake	Day	11.05	1,616,000	4,000	800
Portage Path	Mar. 9	10	Day	11.05	397,200	0	0
Portage Path	Mar. 9	13	Day	11.05	230,800	1,600	0
Portage Path	Mar. 9	8	Day	11.05	186,800	400	0
Portage Path	Mar. 9	17	Day	11.05	85,600	800	0
Portage Path	Mar. 9	31	Day	11.05	122,400	400	0
Portage Path	Mar. 9	20	Day	11.05	200,000	400	0
Portage Path	Mar. 9	23	Day	11.05	114,400	1,600	0
Portage Path	Mar. 9	26	Day	11.05	439,600	0	0

TABLE XXIV—Continued.

DUST PARTICLES IN SCHOOL AIR

School	Date	Room	Length of Exposure	Area Exposed (Sq. in.)	No. of Dust Particles I.	II.	III.
	1917						
Portage Path	Mar. 9	Outside of new intake	Day	8.3	368,000	1,200	0
Portage Path	Mar. 9	10	Day	8.3	154,800	400	0
Portage Path	Mar. 9	13	Day	8.3	132,400	400	0
Portage Path	Mar. 9	8	Day	8.3	342,800	1,200	0
Portage Path	Mar. 9	17	Day	8.3	149,600	0	0
Portage Path	Mar. 9	31	Day	8.3	107,600	400	400
Portage Path	Mar. 9	20	Day	8.3	211,200	1,600	0
Portage Path	Mar. 9	23	Day	8.3	248,400	400	0
Portage Path	Mar. 9	26	Day	8.3	274,800	400	0
Henry	Mar. 12	West side intake	Day	11.05	947,200	3,200	800
Henry	Mar. 12	South side intake	Day	8.3	649,600	1,200	0
Henry	Mar. 12	9	Day	19.35	200,000	800	0
Henry	Mar. 12	3	Day	8.3	83,600	800	0
Henry	Mar. 12	4	Day	19.35	361,600	400	0
Henry	Mar. 12	12	Day	19.35	15,600	400	0
Henry	Mar. 12	8	Day	19.35	444,400	1,600	0
Henry	Mar. 12	6	Day	19.35	552,800	1,600	0
Henry	Mar. 12	13	Day	19.35	368,000	0	0
West High	Mar. 15	North East intake	Day	19.35	12,074,000	17,600	2,000
West High	Mar. 15	West intake	Day	19.35	1,592,000	1,600	0
West High	Mar. 15	45	Day	19.35	80,400	400	0
West High	Mar. 15	50	Day	19.35	252,000	800	0
West High	Mar. 15	39	Day	19.35	436,400	0	0
West High	Mar. 15	34	Day	19.35	186,000	0	0
West High	Mar. 15	30	Day	19.35	447,600	1,600	0
West High	Mar. 15	22	Day	19.35	406,800	1,200	400
West High	Mar. 15	25	Day	19.35	610,800	5,600	5,600
Jennings	Mar. 16	Intake	Day	19.35		Innumerable	
Jennings	Mar. 16	7	Day	19.35	801,600	400	400
Jennings	Mar. 16	11	Day	19.35	986,400	1,200	0
Jennings	Mar. 16	14	Day	19.35	591,200	0	0
Jennings	Mar. 16	21	Day	19.35	461,200	800	0
Jennings	Mar. 16	23	Day	19.35	449,600	800	0
Jennings	Mar. 16	15	Day	19.35	360,400	0	400
Jennings	Mar. 16	18	Day	19.35	203,600	800	0

In this connection the soot flares about the air inlets in many schools are significant. Among the new schools, rather bad cases were noticed in the Miller, Portage Path and Robinson. It would be difficult to say which, among the older schools, were worst in this respect.

Dresslar writes as follows:

"Architects and school officers too frequently give no thought to the source from which fresh air is to be supplied until the site for a building is chosen, the plans drawn, and the building is in process of construction. Then it is usually too late to make amends.*

*"I have in mind at this time an expensive and, in the main, well-planned school building, situated near a busy street, from which clouds of dust are stirred up at frequent intervals and, to make matters worse, the architect actually set the fans to draw the air from the street side of the building, and near the ground at that."

No janitor will be able to keep such a building clean, until some method of filtering the dust out of the air is installed, or unless the intake for the fresh air is moved to the rear of the building and high above the level of the street. But even if the janitor can find a way to remove the dust at the close of each day, during the school session the children must breathe dirty air and suffer the consequences."

The least that can be done in Akron is to have all air drawn into school buildings taken from a considerable height above the ground and at a point where it will not be contaminated by the smoke of the school buildings themselves. If it is decided that nothing can be done to eradicate the general smoke nuisance in the city, air washing devices should be installed so that school children could get pure air at least five hours out of the twenty-four.

III. LIGHTING.

The Akron schools probably stand higher in the natural lighting of their school-rooms than in any other department of hygiene. The principle of lighting all class-rooms from one side only has been definitely adopted. In new buildings the piers between the windows are narrow and windows reach to, or almost to, the ceiling. All this is in strict conformity with modern practice.

The State law requires that the window area shall be one-sixth of the floor area in class-rooms. It is generally accepted among hygienists that the ratio of window area to floor area should be not less than one to five. The conditions in Akron for the 450 class-rooms reported on are as follows:

In 17, the window area was more than 1/3 of the floor area.
In 40, the window area was between 1/4 and 1/3 of the floor area.
In 115, the window area was between 1/5 and 1/4 of the floor area.
In 7, the window area was exactly 1/5 of the floor area.
In 128, the window area was less than 1/5 but more than 1/6 of the floor area.
In 11, the window area was exactly 1/6 of the floor area.
In 55, the window area was less than 1/6 but more than 1/7 of the floor area.
In 77, the window area was less than 1/7 of the floor area.

By the higher standard 179 class-rooms are well lighted and 128 might be regarded as fairly well lighted. By the legal standard 318 out of 450 are well lighted and 55 others might be considered as passable if other lighting conditions are good.

It is important that cross lights should be avoided in class-rooms where ordinary academic work is performed. Windows on two sides of the room offend somewhat against this canon, windows on three sides are highly objectionable, and windows on four sides are almost intolerable—that is unless some are covered by some opaque material.

Of the 499 school-rooms for which facts were given on this point:

255 reported windows on one side only.
233 reported windows on two sides only.
9 reported windows on three sides.
2 reported windows on four sides.

This is an excellent record and will yearly grow better under the existing policy of the Board.

The orientation of rooms, the direction in which their windows face, is also important. A north light is suitable only to such work as Art and Manual Training. A southern exposure is bad because it subjects the rooms to the direct rays of the sun for too long a period in the school day. If the shades are pulled down, the light is insufficient. If left up, the glare from polished surfaces is very distracting. Eastern and western exposures are best for most class-rooms.

In 107 class-rooms the main light for the pupils—that coming over the left shoulder—is from the west;
In 108, from the east;
In 128, from the north; and
In 130, from the south.

In almost half of these rooms light comes from other quarters also, so that in many rooms—although the pupils' best light may come from the west or east—other light may come from the south. **It is recommended that in all future construction arrangements be made, wherever possible, to supply light to regular class-rooms from the east or west only.** An eastern exposure is deprecated by some on the ground that it makes map-work difficult for children.

No careful study was made of the artificial lighting of the rooms and corridors. One statement that it was insufficient in one school was made to the observer. High Schools are apparently well supplied with artificial lights. **It is evident, however, that if the school day be extended and social center work extensively introduced, the whole question of sufficient artificial lighting will have to be gone into thoroughly. This should be the work of an Assistant Superintendent in charge of social and other specialized activities.**

In the newer buildings the tops of windows are flush or almost flush with the ceiling. This is in accordance with the best practice, as for corresponding areas, the light coming in from the top of the window is much more effective than that coming in at the bottom.

In 55 rooms, the window tops were less than 6 inches from the ceiling; in 271 between 6 and 12 inches from the ceiling; and in 134, over a foot from the ceiling. The State law requires that window tops shall not be placed more than 8 inches below the minimum ceiling height established by law. This varies with the width of the room, so that windows may be more than 8 inches from the ceiling, where these are high, and still conform to the law. For heights above the State minimum the law should not allow more than an eight-inch leeway. Four inches would be better.

IV. CLOAK-ROOMS.

The State law allows cloaks and wraps to be kept either in separate cloak-rooms or in parts of the class-room partially separated from the class-room proper. In both cases, cloak-room spaces must be ventilated. The great majority of these in Akron—all in the new buildings—conform to the State law. Out of 465 class-rooms noted, 38 have cloak-room space in halls or corridors, 184 in separate cloak-rooms, and 243 in partially separated areas of the class-rooms. No unpleasant odors resulting from the presence of outer clothing were noticed in class-rooms which had cloak-room spaces and there is no evidence that this method of taking care of wraps is dangerous. As pointed out before, however, the ventilation of the space just back of the semi-partition is probably defective and possibly could be improved by the substitution of open grilling for solid wood work in the screen. The best arguments used for the semi-detached cloak-room method are economy and ease of discipline. The latter should not be considered. Children should be trained to control their own actions in school cloak-rooms as they would in those of private homes. Discipline which cannot effect this can have little effect on active life in the world. There should, of course, be wash basins in connection with every room. These are best placed in separate cloak-rooms. In some of the cloak-room spaces, clothes were observed hanging so thickly over the outlets as to almost completely obscure them. The writer cannot refrain from stating his opinion that the separate cloak-room is preferable from the standpoints of aesthetics and utility and perhaps from that of health.

V. SEATING.

Exclusive of kindergartens and special rooms, there are 21,678 sittings* in the Akron public schools. Of these only 975 are adjustable. This is not so serious as it seems, as each room has several sizes of seats and desks. Unless adjustable seats are frequently adjusted they are worse than useless and sittings of assorted sizes may be so used as to fill all practical needs. In some schools foot-rests are in use. With a shift or a modified platoon system, or where social center work is carried on extensively, the adjustability of seats is of no significance, and in the home where children spend more time than in school, adjustable seats are not in use. From a practical standpoint, therefore, and in schools where discipline is not artificially rigid, sittings of carefully assorted sizes meet sufficiently well all important needs.

VI. CLEANING OF ROOMS.

The school-rooms of Akron, as a whole, are undoubtedly kept in good sanitary condition, especially if the difficulties caretakers must have, resulting from the smoke and dust nuisances, be considered. There was scarcely any indication of incompetence, carelessness or indolence on the part of the caretaking force.

*It may be of interest in this connection to note that the total enrollment during the first half of 1916-1917 was 21,987, and the average daily attendance, 19,090. It is evident that even allowing for seats in special rooms, the margin of unoccupied seats cannot be large.

Four school-rooms were reported to be thoroughly scrubbed or cleaned more than six times a year; 51, four times; 333, three times; 51, twice; and 4, once.

Of 496 school-rooms reported on as to method of sweeping, 261 used a vacuum cleaner; 231, the brush broom; and 4, other appliances. **Akron is to be congratulated on its policy of installing vacuum cleaners in all buildings where practicable.**

In 467 class-rooms, daily sweeping was reported. Four were swept less frequently. Daily dustings were the practice in 406 rooms, less frequent dustings in 61.

Fifty rooms were swept in the morning; 145 at noon; and 260 at night. Three hundred and eight were dusted in the morning; 60 at noon; and 67 at night. It would seem that the prevailing practice is to sweep at night and dust in the morning. Unless special circumstances forbid this would seem to be the best way except perhaps where vacuum cleaners are used. In all buildings or wings where vacuum cleaners are not available, some sweeping mixture, such as oiled sawdust, is used. In dusting, oiled cloths are used throughout except in 19 cases. In 18 cases dust chasers, otherwise called feather dusters, are reported to be in use. A feather duster should not be permitted in a school building.

The schools of Akron are putting up a brave fight against the invasion of dust and dirt from outside and are using thoroughly efficient methods.

VII. MISCELLANEOUS.

On the whole, the class-rooms of the schools in Akron are roomy. Some are larger than is economically desirable. Some are wider than they should be for efficient lighting of black-board surfaces. Some are too long for distinct hearing except at the abuse of the teacher's voice. The ceilings are sufficiently high, only 61 being less than 12 feet. Three hundred and eighty-seven are between 12 and 14 feet; and 20 are more than 14 feet high. Ten thousand cubic feet is a fair size for a class-room not overcrowded with pupils. Those used for individual instruction and other special work may be much less. Akron has:

1	class-room	of between	3,000	to 4,000	cubic feet
2	class-rooms	of between	4,000	to 5,000	cubic feet
10	class-rooms	of between	5,000	to 6,000	cubic feet
11	class-rooms	of between	6,000	to 7,000	cubic feet
11	class-rooms	of between	7,000	to 8,000	cubic feet
38	class-rooms	of between	8,000	to 9,000	cubic feet
76	class-rooms	of between	9,000	to 10,000	cubic feet
97	class-rooms	of between	10,000	to 11,000	cubic feet
90	class-rooms	of between	11,000	to 12,000	cubic feet
96	class-rooms	of between	12,000	to 13,000	cubic feet
22	class-rooms	of between	13,000	to 14,000	cubic feet
6	class-rooms	of between	14,000	to 15,000	cubic feet

8 class-rooms of between 15,000 to 16,000 cubic feet
1 class-room of between 16,000 to 17,000 cubic feet
2 class-rooms of between 17,000 to 18,000 cubic feet

Drinking water arrangements are, on the whole, satisfactory. In some cases, however, the bubblers in use are hardly, if any, less insanitary than the common drinking cup. Where there are no bubblers, dust proof containers for individual cups are sometimes lacking. Details are given in the list of sanitary defects on Page 94. **The best form of drinking fountain should be selected, installed wherever possible, kept in good working condition, and supplied with water under sufficient pressure. Infection through the mouth and alimentary tract is more common than infection through the air passages.**

VIII. A SCHOOL BUILDING POLICY FOR AKRON.

Outside of its congested areas in the "old" city, Akron can adopt almost any policy of school building and administration it desires. But even Akron is not homogeneous as to racial origin, cultural inheritance, economic outlook, or social ideals. Its school organization should be as varied as the environment demands. Uniformity kills, equivalence in variety makes alive. The children of Akron do not all start at the same place, neither should their school life start at the same place. They will not enter active life at the same place, so they should not leave school with the same equipment. Throughout the twelve years of school life the courses of study and method of organization should vary with the prevailing types in different localities, and the chief variants in the same locality.

There are five general types of organization which may be considered for Akron. These are:

1. The large elementary school, self-contained, with eight grades and tributary, with other elementary schools of the same rank, to a four-year High School;
2. The large elementary school, with all grades, having smaller elementary schools of six grades grouped around it and sending to it all children when promoted from the sixth grade;
3. A group of smaller elementary schools with not more than six grades, grouped around and tributary to a Junior High School of three grades, itself tributary, with other similar schools, to a Senior High School of three grades;
4. A combined elementary and high school with all grades from the first to the twelfth, both inclusive;
5. A series of elementary or elementary and high school units grouped around a central building for administration and with rooms for teaching special subjects needing expensive equipment.

Type 1.

This type is common in Akron, in fact it is the basis of the Akron organization. No school of this type is complete without a play-ground of at least five acres, allowing opportunity for free play in the large group games of both boys and girls. It should also have an auditorium suitable not only for school but for community purposes. Its gymnasium should be large and well equipped with simple apparatus and shower baths. If possible there should be a swimming pool in connection. Provision should be made for wood-working and other forms of manual training for boys; cooking, sewing and other domestic arts for girls. This provision should be sufficient to give at least two hours per week to all boys and girls in Grades 7 and 8 and all over-age boys and girls in lower grades as soon as they reach the age of twelve.

The buildings should be of the unit type capable of indefinite expansion. All structures should be of fire-proof construction. Old buildings should be equipped with thoroughly safe and usable fire escapes.

This type will remain for a long time in the already built up parts of the Akron system except where old buildings are to be torn down and new ones erected. All schools of Type 1 should be brought thoroughly up-to-date in every particular. They could be operated on the shift plan if necessary and be made thoroughly efficient in every respect.

Type 2.

This type, in modified form, is already in operation in parts of Akron. To be efficient the tributary schools should have grounds of not less than two acres and the central school of not less than five acres. The central school should have all the provisions in special plant and equipment outlined in Type 1. Such a school, or any part of it, might be operated on the shift plan. **In the congested part of the city this type offers good promise for the future, as small tributary schools could be erected in various localities without too great expense for grounds. This type can be made thoroughly efficient.**

Type 3.

This type is not found in Akron, although the Jennings School might be developed into a pure Junior High School, into a regular High School, or a combined six-year High School with tributary elementary schools of six grades in its vicinity. The Junior High School type of organization provides for elementary schools of at least six grades, Junior High Schools of three grades, and Senior High Schools of three grades. This type, which should have all the plant and equipment outlined for Type 1, offers great promise for future school development particularly in the more thickly settled districts and in districts where there is a net work of car-tracks which young children would have to cross. The six-grade schools would require two-acre play-grounds and the Junior and Senior High Schools at least five acres each. The advantages of this type are these:

1. The first six grades can be taught in buildings without expensive equipment for special subjects, such subjects requiring little costly apparatus in lower grades if properly taught;
2. More centers of community interest are established and thus a greater part of the population is reached;
3. Young children do not have to travel far;
4. The Junior High School provides a transition between the elementary school and the Senior High School, so that departmentalizing can be introduced gradually in the school life of children, and so that the disciplinary break will not be so great;
5. The Junior High School corresponds to a real stage in child development which demands different treatment in discipline and mode of presentation;
6. The Junior High School provides an opportunity for children who do not intend to complete the High School course, to receive a pre-vocational training suitable to their needs;
7. The Senior High School receives from the Junior High School pupils better prepared for High School life than they could possibly be from a regulation elementary school;
8. The Senior High School is relieved by the subtraction of over one-quarter of its pupils, so that buildings becoming out-grown may again become amply sufficient;
9. Senior High Schools will find it possible to put in still further special equipment;
10. The tendency is to encourage more children to take a High School course, particularly if High Schools offer vocational or pre-vocational courses;
11. Any stage in this type of organization may be administered on the shift, modified platoon, or departmental systems, if desired.

Type 4.

This type is not found in Akron although the Jennings, having ten grades, approximates it. It is suitable for any large settlement rather widely separated from the city proper. Its course may be divided into six elementary years, three intermediate years and three High School years, or the division may be six and six, or eight and four years. This type is said to encourage children to complete the full course. It certainly does not artificially accentuate the completion of some part of the course, which is true at present of most school systems. On account of differences between the discipline required for children of different grades this type offers disciplinary difficulties. Shift or modified platoon systems would be more difficult to operate without confusion than in other types. The same special rooms and equipment are necessary for this type as are outlined for Type 1. From five to ten acres of ground would be required.

Type 5.

The separate unit type with central building:

This type would require ten or fifteen acres of ground. In the center would be an administration building which would also contain a large auditorium, a large gymnasium, adequate shower baths and a swimming pool. The rooms and equipment necessary for the various manual training and domestic art subjects should also be located in this building, as well as the heating plant for the group. Around the sides of the site could be located distinct units, each with a sub-principal. Several of these units would be six-grade elementary units, one would be a Junior High School, and—if local conditions made it desirable—one could be a Senior High School. This type of organization is common in private secondary schools and in Universities.

It allows for differences in discipline and differentiation in courses of study for different types of pupil. It would have the advantage that Type 4 has of stimulating the ambition of children to complete the course. From the standpoint of capital cost and upkeep of buildings it would be economical. It would facilitate supervision and would increase the percentage of men in the service as would Type 3. The interior court could be divided into four play-grounds for different types of play and different ages of pupils.

The continuous use of extensive special plant and equipment would be insured and regular class-rooms, when not occupied by regular classes, could be used to advantage for instruction of exceptional children.

This type would perhaps do more than any other to awaken community pride. It is, however, especially adapted to semi-detached communities, with good roads and sidewalks, with no car-tracks, and so thickly settled as not to require long walks for young children.

It will be noted that in all these types provision is made for instruction in swimming. So much has been said as to possible contamination from swimming pools that a letter from the Assistant Physical Director of the Toronto Young Men's Christian Association is included, with tests of the local Department of Health:

Toronto, April 5th, 1917.

"Regarding our swimming plunge, I herewith submit the following information regarding same:

Size of plunge—length, 75 ft.; width, 25 ft.; depth at shallow end, 3 ft.; depth, 8 ft. 8 in., twenty feet from deepest end; depth at deepest end, 5 ft. 10 in.

Capacity in Imperial gallons—90,000.

Filtration—We have two filters with continuous filtration, sand, charcoal, alum and chlorine. Water is run off once a month and changed.

Highest number of soldiers using plunge per week	16,125
Average number of soldiers using plunge per week	2,000
Average number of members using plunge per week, not including soldiers	2,500

Every person is required to have a thorough shower bath before using the plunge.

Bathing suits prohibited for sanitary and hygienic reasons.

No person is allowed to use the plunge who shows signs of having any kind of skin disease.

There is no comparison to be made between the purity of our plunge water and unfiltered lake water. The statements of the Health authorities go to show that the plunge water compares very favorably with the city's drinking water. Enclosed you will find copies of two tests taken by the Health authorities.

We have not had one known case of infection from our plunge since the opening of the building in September, 1913.

Trusting this is the information you require,

Sincerely,

(Signed) WM. WINTERBURN,
Assistant Physical Director."

Copies of Tests.

DEPARTMENT OF HEALTH.

Mr. F. Smith,
Physical Director, Central Y. M. C. A.,
College Street, Toronto.

Dear Sir:—

The two specimens of water from your plunge tank examined recently, show results as follows:

Sample	Bacteria per c. c.	B. Coli 1 c. c.
Plunge tank before chlorination	23,000	Absent
Plunge tank during or after chlorination	19	Absent

Very sincerely,

(Signed) GEO. G. NASMITH,
Director of Laboratories.

DEPARTMENT OF HEALTH.

Mr. F. Smith,
Physical Director, Central Y. M. C. A.,
College Street, Toronto.

Dear Sir:—

The two water specimens taken from your plunge tank on the 5th inst., give, on bacteriological examination, results as follows:

Sample	Bacteria per c. c. on agar	Red Colonies per c. c. on neutral red bile salt agar	B. Coli 1 c. c. Lactose Bile
North End	168	1	Absent
South End	220	1	Absent

This water is perfectly safe for the purpose to which it is put.

Very sincerely,

(Signed) F. ADAMS,
Acting Director of Laboratories.

It may be said that probably no plunge or swimming pool in America has been submitted to the test the Toronto Y. M. C. A. plunge has since the beginning of the war.

There can be no doubt that a plunge, properly cared for, is safer for bathing purposes from the standpoint of possible infection than most lakes and rivers and even than some water supplies.

No matter what type or types of school be adopted, it should be recognized that a sound body is the first consideration, being basal to the most efficient mind and to the highest type of citizenship. Principals and teachers in Akron recognize the handicap under which some existing schools are working. One principal writes as follows:

> "I think no school, when it is avoidable, should be kept on as noisy and dusty a corner or location as the one where our school is located. Street cars and steam cars make a continual confusing noise: the windows must be open for ventilation and, while teachers and pupils seem to be happy in their work, it is much harder to preserve a sweet temper and a pleasant tone of voice. In time, this site can be sold for more than enough to build a modern building in a good location."

It is recommended that a joint conference of the Board of Education, the professional staff of the schools (superintendent, supervisors, principals and teachers), Chamber of Commerce and other citizen organizations take steps to lay out in detail for Akron a plan for diversified school construction in desirable localities.

PART C

WHAT THE SCHOOL REVENUE BUYS FOR THE BOYS AND GIRLS OF AKRON.

I. WHAT IS TAUGHT IN THE PUBLIC SCHOOLS OF AKRON.

1. General.

The introductory suggestions of the official Course of Study and Manual of Instruction for the public schools of Akron is worthy of the careful study of every parent in Akron who has children in the schools and of every citizen who has the interests of the city at heart. The measure of success of the administration of the schools might well be the degree with which the standards set up in the sixteen paragraphs of this introduction are realized in actual practice.

The fundamental organization of the Course of Study is best set forth in the following excerpt from paragraphs 7 and 8:

"7. The great purpose of this Course of Study should be to select from different phases of the environment of our children those which are most valuable, educationally and practically; to organize into 'branches of study'; and to assign them to the several periods of the development of the children of school age, so that they may be brought into the children's lives."

"8. The following analysis is intended to show the classes into which the environment of the child is divided and the branches of school study representing each class. **If it is true that the total of an individual's environment is acted upon by his mind in the act of becoming educated, then every class of environment should be represented in the Course of Study for the schools:**

WORLD (Action and Reaction—Impression and Expression).

I. OF NATURE.

1. Inorganic.

(1) Mathematics.
- a. Arithmetic.
- b. Mathematical Geography.
- c. Constructive Drawing.
- d. Algebra.
- e. Geometry.

(2) Physical Science.
- a. Observation Lessons (in part).
- b. Physical Geography (in part).
- c. Physics.
- d. Chemistry.
- e. Home Economics (in part).

2. Organic.
   a. Nature Lessons (in part).
   b. Botany.
   c. Physiology (Physical Culture).
   d. Physical Geography (in part).
   e. Home Economics (in part).

II. OF MAN.

1. Depending Upon Thinking Power (Theoretical).
   a. Phonics.
   b. Word Drill.
   c. Language Lessons (for form).
   d. Penmanship.
   e. Grammar.
   f. Rhetoric.
   g. Latin, German, etc.
   h. Logic.
   i. Psychology.
   j. Philosophy.

2. Depending Upon Will Power (Practical).
   a. Political and Industrial Geography.
   b. Fable and Folk Story.
   c. History-Story and Biography.
   d. History.
   e. Civil Government.
   f. Political Science.

3. Depending Upon Aesthetic Power (Artistic).
   a. Reading (in part).
   b. Literature.
   c. Music.
   d. Representation and Decoration Drawing.
   e. Color (Nature Lessons).
   f. Picture Study."

It will be seen that the world in which the children live, the world of Nature and of Man, is made the basis for the Course of Study. **Any child who succeeds in taking the whole course from the kindergarten to graduation from the High School must, if the teachers do their share and the Board of Education provides the necessary facilities, establish vital relations with the world of which he forms a living self-active part, and should proceed without any appreciable jar into the life of the after-school period.** As the Manual well says in paragraph four: "The school must be considered as an institution which not only prepares for life but which is life." This view-point forms the basis for the discussion in the pages which follow of the Course of Study and its actual working out in class-room instruction.

2. The Elementary Course of Study.

All children who complete the elementary course of study receive instruction in the following subjects:

Reading.
Spelling.
Writing.
Arithmetic.
Physical Training.
Language (Oral and Written Expression).
Drawing (Including Decoration and Construction).
Geography and Nature Study.
Picture Study.
History (including Current Events and Elementary Civics).
Physiology and Health Lessons.

It would be a waste of time and money to give a detailed outline of just what work the subjects cover. They are outlined in very complete detail in the official manual which is available for every interested citizen of Akron. The noticeable omissions from the course are the subjects usually included under the names of Manual Training and Domestic Arts and that important branch of Physical Training, Swimming. The first two are now almost universal in school systems which claim to be abreast of the times, while swimming on account of its practical and developmental value is rapidly conquering an assured position for itself on the modern curriculum. The Course of Study in the Bowen School is on the whole well up to accepted standards, and represents the minimum which is the birthright of every child in Akron. The importance of the motor element in education, as will be pointed out later in the analysis of actual class-room instruction, is recognized throughout the Akron system and is given as large a space as is humanly possible within the present range of the curriculum and the physical facilities provided. In the lower grades drawing and construction work with the motor elements in academic subjects give at least fairly adequate recognition to the principle of the necessary correlation of impression and expression. But in the upper grades where the children are passing through a period of vigorous growth their developmental needs, mental and physical, require, in addition to these, facilities for expression which will bring into play the larger muscles and will necessitate comparatively vigorous action and freedom of movement. The almost absolute lack of such opportunities in wood-working, cooking and swimming is particularly serious for those over-age children in grades below the seventh who come of legal working age before the completion of the school course, and who in many cases are handicapped mentally and physically throughout life by the failure to pass through at the proper time an environment rich in opportunity for motor expression. No better short discussion of the place of motor expression in education is to be found than in Dr. Hotchkiss' paper on "Expression: A Necessity in the Development

of Thought Power." The following quotations give an idea of the stand of the Superintendent:

"Self-education begins in our race with **the stretching forth of the hand.**"

"Whether by design or not, laboratories, note books and playgrounds, **gymnasiums, shops,** and drawing rooms are, when rightly understood and used, means by which pupils may express themselves and thereby develop **thought** power."

"James, in his 'Talk for Teachers,' says: 'No impression without correlative expression: This is the great maxim which the teacher ought never to forget. An impression which simply flows in at the pupils' eyes or ears, and in no other way modifies his active life, is an impression gone to waste. **Its motor consequences are what clinch it.**' "

The child throughout his elementary school life is receiving impressions from seeing people making things and cooking things. Particularly at the later grammar grade age these impressions constitute suggestions and even impulsions which force children to such forms of expression as their means will allow. In so far as these expressions fall short of the best possible to the child, just so far the educational process has failed. It is the duty of the school to see to it that the richest possible motor environment shall be vouchsafed to every child **while he is in school** and while his motor instincts are dominant. It is not enough to supply these opportunities in the High School. If a choice had to be made between the High Schools and the elementary schools, the elementary schools should have the first claim for these if for no other reasons:

1. All children go to the elementary schools.
2. Some children never get to any other schools.
3. Some children do not even complete an elementary school course.
4. Delay in supplying sufficient motor activity is apt to lead to the atrophy or non-development of certain valuable tendencies or powers which are part of each individual's assets.
5. If children have received a good foundation in the grades they are more in a position to obtain for themselves the proper means of motor expression than would children who have to go to work direct from the elementary school without instruction in such subjects as manual training and domestic arts.
6. While the High School probably produces a greater number of leaders than are found among those who never go to High School, this can never make up for a lack of a high general level of intelligence and productive efficiency among the rank and file in a modern democracy.

II. HOW THE SUBJECTS OF THE COURSE OF STUDY ARE TAUGHT IN THE ELEMENTARY SCHOOLS OF AKRON.

1. Basis of Judgment.

The basis for the judgment expressed in the discussion which follows was the careful observation of 163 teaching exercises in all grades from the kindergarten to Grade 8-A, inclusive. Not all of these were complete exercises but a sufficient amount of each was observed to give a fair idea of the methods of instruction when taken in connection with complete observation of other similar exercises. The work of one school was observed for a school week in order that a complete cross-section of one school might be obtained as a guide in observing the work of other schools. In all 14 school buildings were visited for observation of class-room teaching, for periods varying from 1½ hours to one week. After some three weeks were put in in class-room observation it became evident that a further investment of time in this way was unnecessary for the purpose of this study,—the formation of an intelligent judgment as to actual class-room processes as a basis for recommendations. Further study would simply duplicate the experience and information already obtained.

No attempt was made in this study to apply any of the so-called standardized tests of class-room instruction. The following are some of the reasons:

1. As later pointed out, **44% of the total membership of the schools comes from places outside of Akron** so that any tests applied would not enable any comparison to be fairly made with other school systems.
2. The school population within Akron itself is extremely migratory so that any tests applied by a short study could not give any satisfactory basis for comparing school with school or any school with itself at a preceding period.
3. Any tests to be of real value from an administrative standpoint are best made by the Superintendent, principals and teachers themselves. They best know local conditions, are best able to judge for Akron the comparative value of different tests, and through experience gained in giving the tests acquire an added ability to give practical recommendations which might grow out of the tests.
4. It is extremely doubtful whether any tests have been—or perhaps can be—developed in any subjects, except those purely mechanical, of any value except for the light they give the teachers on their own work.
5. Tests of the mechanical subjects are already in use in Akron, some types having been discarded after careful experiment.
6. What Akron wants to know is not so much how she compares with other cities (Akron conditions are unique in many respects) but how she compares with her own highest possibilities.

7. The comparison of class-room processes and results in particular schools and for particular principals and teachers is entirely outside of the scope of this report. These are topics for the consideration of the local authorities.
8. Any tests to be of value would require a much greater period of incidence that was at the disposal of those charged with the study.
9. The major points at issue—matters of great importance to the community—could not be studied apart from observation of processes and the actual reactions of teachers and pupils. These major points include such topics as the development of initiative among pupils, freedom of experiment among teachers, the development of habits of accuracy and diligence among pupils, the development of citizenship, the use of the investment in the schools for the highest and most varied community purposes.

Before reading the Course of Study and Manual of Instruction and holding prolonged conferences with school officials, a form of inquiry was drawn up as a basis of study. No attempt was made to cover all the points which should be observed, as a great many of these do not lend themselves to tabulation or inquiry by schedules. The form was used simply to insure a certain uniformity in observation and that no important point lending itself to tabular treatment should be left out. The form is submitted herewith:

Date.....
Name of School.....Grades.....
No. present.....Time of lesson.....
Lesson in.....Nature of exercise.....
Topic of.....Time lost.....

A. **Personality of Teacher.**

1. Neat.
2. Vigorous.
3. At ease.
4. Sympathetic.
5. Dignified.
6. Loud spoken.
7. Stimulating initiative.
8. Talkative.
9. Enthusiastic.

B. **Methods of Teacher.**

1. Repeats answers.
2. Repeats questions.
3. Requires definite answers.
4. Requires accurate answers.
5. Completes pupil's answers.
6. Asks leading questions.

7. Asks pumping questions.
8. Interrupts pupils when reciting.
9. Teaches from text book.
10. Associates advance steps with past class work.
11. With past experience of children.
12. Motivates lesson.
13. Brings out relative values.
14. Uses illustrative material.
15. Suggests material for solution of problems.
16. Gives opportunity for pupil co-operation in developing lesson.
17. Assigns by pages or paragraphs.
18. Assigns by topics.
19. Makes clear assignments.

C. **Reaction of Class.**

1. Pupils interested.
2. Pupils ask questions.
3. Volunteer information or suggestions.
4. Show other signs of self-activity.
5. Recite fluently.
6. Talk aimlessly.
7. Give incorrect answers.
8. Give hazy answers.
9. Answers in words of book.
10. Answers apparently committed to memory.
11. Pupils co-operate with teacher and class-mates.

NOTES .....

It will be observed that the points covered are such as come up frequently in the experience of every supervising officer and that no attempt is made to be ultra-scientific or to itemize extensively. The notes provide opportunity for observations on aspects of class-work not covered by the schedule.

After the class-room enquiry was completed an analysis was made of material which would throw light on the standards of class-room excellence which are applied in the supervision of the Akron schools. The following excerpts from publications of the Superintendent will shed light on the question of how the standards actually used in the inquiry compare with the official standards of class-room instruction as set up for the guidance of Akron teachers.

"Things to be avoided:

1. "In the schools that I attended, and probably in those that you attended, the daily practice was about as follows: Lessons were assigned without explanation or illumination on the part of the teacher, to be prepared by the pupils at their seats or at their homes. In the recitation period, the teacher questioned and cross-questioned pupils upon the subject-matter of the lessons previously assigned. Most answers given by pupils were repeated by

the teacher before the next question was asked. Very often the teacher interrupted the pupil in the midst of his answer, completing the answer herself. Very often, when the pupil hesitated in answering, the teacher by suggestion, intonation, or direct statement supplied the pupil what he himself **should have** stated. The teacher exercised little, if any, discrimination in selecting topics to be emphasized and explained. All facts and truths were placed upon the same dead level, and were droned over principally by the teacher, apparently upon the theory that what the teacher said in the presence of the child found lodgment in the memory of the child and developed corresponding power in the faculties of the child."

2. "If I were to name the characteristic mistake in the practice of the teaching profession, the mistake that results most disastrously to the pupils, I would say that it is **the practice** (also, too universal) **of talking too much** to the pupils, of doing too much for them, and of **requiring too little from them.**"

3. "Many schools operate their ventilating fans with gas engines. The exhaust pipes from these engines are usually conducted under-ground to chambers of concrete, whose purpose is to muffle the explosions. Fellow-teachers, one concrete muffler is usually enough about a school-house. Let that one be outside, underground.

   Furthermore, let us see to it that no such mufflers get inside the school-rooms, behind the teachers' desks, there to check the explosions in the thought centers of the children which might, under proper encouragement and direction, result in self-expression in its manifold forms."

It would seem evident that the two sets of standards are fundamentally similar and that any conclusions drawn from the results of applying the standards used in this inquiry should—if done thoroughly—be eminently just and helpful from the standpoint of local conditions. Those responsible for the inquiry have no quarrel with the local standard as expressed in official documents. Any class-room teaching which comes measurably near to fulfilling these standards would necessarily be rated as of very high quality.

2. General Characteristics of Class-room Instruction in the Elementary Schools.

The thing that impressed the writer most in an examination of class-room processes in Akron is the remarkable facility with which large numbers of children from the first grade up are able to think and express themselves connectedly on their feet. Under the most favorable circumstances this does not limit itself to expressing the thoughts obtained from text-books or teacher but shows itself in independent criticism of the recitations of others, in some cases in impromptu and rough and ready debate, and frequently in pointed questions addressed to class-mate or teacher. Not all these manifestations of self-mastery and initiative were observed in all class-rooms visited. Some class-

rooms gave little or no evidence of real success in developing autonomous action in the pupil. In some class-rooms there was but the appearance of independence—the pupils were as much automata under the control of the teacher as possible under any system. A martinet, a principal or teacher defective in sympathy or imagination, may secure the appearance of freedom while conducting a system of regimentation very debilitating to pupil and teacher alike. For some time the examiner was at a loss to account for the general free expression of pupils in recitation, but a day or two in the class-room supplied the explanation. These are found in two ways of doing things in the Akron schools:

a. The study-recitation.
b. The automatic pupil administration.

a.—The Study-Recitation.

The examiner found that practically every recitation on old material had been preceded by a period when the teachers and the pupils went over the new lesson together, the teacher pointing out or getting the pupils to point out the most important feature, relating the material to past knowledge and correlating and co-ordinating the material within itself. Where well conducted, the pupils asked questions freely, the teacher invited questions and the whole exercise was designed to show the pupils how to study, not to do the actual studying for the pupils. When poorly conducted the study-recitation was hardly more than a bare assignment of the lesson, in extreme cases by pages only. There can be no excuse for the failure of any teacher in Akron to appreciate the importance of teaching the children how to study. This is shown clearly by the following excerpts from an address given by the Superintendent and available to every principal and teacher.

"The time spent by a pupil in the mastery of his daily lesson should usually be divided into three parts—study-recitation, the individual seat or home-study, and the recitation. The minutes to be spent on each part will depend upon the nature of the lesson."

"The study-recitation is the exercise in which the teacher leads her pupils in their first attack upon the lesson that is to be studied later and recited next day. It is an assignment of the lesson, and very much more than the mere assignment by page or topic. **It is in the study-recitation that the activity of the teacher is greatest. It is in this that the teacher really teaches.**"

"Among the ends to be accomplished by the study-recitation are these: (1) It should help the pupil to know: (a) which are the great points in the lesson; (b) how to connect these facts already learned; (c) how to determine their bearing upon the general trend of the subject; (d) what helps should be used in preparing the lesson and just how to use those helps; (e) what constitutes a mastery of the lesson and a passable recitation upon it. (2) It should develop in the pupils correct methods and habits of study.

(3) It should afford the teacher an opportunity to know the powers and attainments of each of her pupils with respect to the lesson, and the subject, thereby suggesting lines of additional personal help."

In some cases, while all this is appreciated, the local administration of a particular school may so standardize practice and insist on absolute conformity to what should be regarded as important suggestions and not prescriptions, that, while the immediate acquisition of information is facilitated, the power to see the meaning in information and to choose to acquire the information on account of its meaning may be sacrificed. **To secure independence of thought and action in the child the teacher must herself be free, the principal must be free and must respect the freedom of others, and uniformity must not be absolute but relative and based not on cast iron regulations but a system of team play decided on by co-operative thinking and planning.** Capacity for independent thought and initiative can be developed in pupils only by those habitually autonomous in thought and action. Where teachers and principals failed to get the most out of the study-recitation period it seemed to follow from a too rigid adherence to the details of the Manual of Instruction, much of which should be regarded simply as suggestions and typical methods of procedure. It requires a nice discrimination to determine what is prescriptive, what is adaptive and what is suggestive. No Manual of Instruction can lay this down. Only the teacher herself, in full possession of the facts as to her pupils and their particular needs and modes of reaction, can determine it. There is no such thing as the absolutely best way of teaching anything any more than there is one absolutely best suit of clothes. The most that a principal should insist on in any case is that a teacher should have in any particular case considered the normal way and that she shall be able to give a reason for departure from the norm. In most cases it should be taken for granted that the teacher knows what she is doing until results show that she does not. Better results are often obtained by allowing a teacher to do a thing in the second best way if it is her way, and the way she believes in, rather than in the best way which the principal believes in. **The examiner's experience in the class-rooms of Akron convinced him that in the majority of cases the study-recitation was doing what was expected of it, that in all cases much better results were being obtained than is usually the case, and that in none are conditions such that informal and sympathetic conferences could not remedy any outstanding defects.**

b.—Automatic Pupil Administration.

From the first grade up, pupils were found in actual charge of most of the routine operations of the class-room and, in the upper grades, of most of the recitation periods (as distinct from study-recitations). In the lower grades pupil administration took charge of the passing of materials, the adjusting of window shades, the cleaning of black-boards and erasers and such like, and in many cases physical exercises were conducted by pupils. In the upper grades not only were the mechanics of school-room management in the hands of the pupils but the majority

of recitations in reading, writing, geography, history, spelling and arithmetic were conducted by pupils. In several cases study-recitations in spelling and, in a few, study-recitations in subjects of a less mechanical nature were observed. When properly carried out not only is the resourcefulness, initiative and sense of responsibility of the pupils increased, but an immense amount of the energy of teachers is set free for the real work of teaching.

The lesson unit in Akron consists of three stages:

1. The study-recitation.
2. Study by pupil at seat or at home.
3. The recitation proper.

The first has already been discussed. The second needs no discussion. The application of the pupil administration principle to the recitation is perhaps the most distinctive feature of the Akron system.

How the Recitation Proper is Conducted.

In the study-recitation period the teacher and her class are co-operators, but the leader is the teacher. Here she does her most valuable work in instruction.

In the pupil-study period the teacher vanishes completely save for her function of protecting against interruption.

In the recitation period the teacher may or may not have direct charge. The judicious principal will encourage discrimination on the part of teachers as to just what recitations may be best conducted by the pupils. The Manual of Instruction allows either method but insists that in any case the most of the time shall be taken up by the pupils and not by the teachers. In the words of the Superintendent "The special aim of the recitation is to give the pupils a maximum of exercise in appropriate expression with the least possible talk from the teacher either in explanation or question. When the teacher conducts the exercise, the matter should be so planned that her activities will consist only in indicating the pupil who is to recite." As a matter of fact this method is worked out in practice. The best teachers in most cases are able to restrain themselves until the end of the recitation to gather up the threads which have not been properly tied and to make necessary corrections. In some cases even the best teachers can not follow out the letter of the directions. It would sometimes be unnatural or unwise to do so. The weaker teachers frequently and without real necessity break in upon the operations of the class.

There is no doubt that in most cases the technique of the teacher would be more finished than that of the pupil, but the growth which comes from self-directed activities more than makes up for any crudities in technique. In any event the teacher is a constant onlooker always ready to fill in the gaps at the end of a pupil-conducted exercise.*

*"During the recitation, the pupil is again important and the teacher correspondingly unimportant. In terms of the times, the pupils must 'run the recitation and the teacher must not butt in.' In other words, the special aim of the recitation is to give the pupils the maximum of exercise in appropriate expression with the least possible talk from the teacher either in explanation or question."

Criticisms frequently made of the pupil-recitation are that:

1. The most capable pupils are the only ones called on;
2. Collusion between pupil-leader and individuals of the class may defeat the ends of the recitation.

As to the first criticism, the same may be urged against the teacher-conducted recitation. The line of least resistance is always easy to follow. There is no good reason why every pupil should not receive his full share of attention. Experience in the class-rooms of Akron would tend to the belief that in any event pupil-leaders were apt to be at least sufficiently ruthless in their pursuit of the results of poor preparation. With regard to the second criticism it may be said that the remedy for collusion—if this exists—is not less pupil participation but more. When pupils feel absolutely responsible and on their honor for the proper conduct of the recitation, they will leave no stone unturned to obtain success. The wide-awake principal and teacher need allow neither of these criticisms to be valid in actual practice.

Next to the facility with which pupils expressed themselves the most notable general feature of the conduct of class-room exercises was the comparatively small part of time taken up by the teachers in talking. Only one or two classes were observed where the teacher "lectured," while in a large number of recitations the teacher took no part save to call on the leaders and sum up at the close, usually by the use of questions addressed to individuals in the class.

Excerpts From Typical Field Notes.

Below are *résumés* of typical field notes taken during observation of class-room instruction in Akron:

Reading:

Grade I-A. Present, 20. Exercise fifteen minutes in duration. The teacher was neat in appearance and of vigorous personality. In her teaching she was at ease, sympathetic, dignified and enthusiastic. Her voice was low and she did not interrupt the class by too much talking. The exercise was preceded by thorough phonic drill at the blackboard. The reading of the class was good as to pronunciation and enunciation. The teacher brought out expression by judicious questioning. The teacher repeated one answer but did not repeat questions, ask leading questions or interrupt pupils in the midst of sentences. She required accuracy and clearness. The pupils seemed interested and read with satisfactory fluency.

Grade V-A. Present, 23. Exercise ten minutes in duration. The teacher was neat, vigorous, at ease, sympathetic and dignified. Her voice was not loud, she was not too talkative, and she seemed fairly enthusiastic. The teacher required accuracy and showed none of the small faults of technique. She established associations between former and present work of the class, brought out relative values of the material before the class and made a clear assignment drawing at-

tention to the chief topics. The class-room was very quiet and the children were interested. The first part of the exercise was conducted by a pupil.

Grade III-B. Present, 17. The teacher's appearance was neat. She talked little and in a low tone of voice. She insisted on accuracy and showed none of the common defects in the mechanics of recitation. The pupils showed little interest and showed no particular initiative or tendency to co-operate. They read with fair fluency, held their books well and spoke distinctly.

Grade I-A. Present, 13. The teacher's personality was good. She was enthusiastic and her manner with her class was excellent. Her class methods were not open to adverse criticism. The children were interested and read fluently. The teacher's share in the work of the class was not prominent.

Grade VII-B. Present, 12. Length of exercise, fifteen minutes. The subject was "Ichabod Crane" both for the recitation and study-recitation. The teacher's presence and class methods were excellent. The recitation was conducted by a pupil, who did well but was perhaps a little lenient in requiring good expression. The children were interested and free in their comments. One boy volunteered that "Ichabod's pupils were as bad as the children in Akron when the teacher's back is turned." This was greeted with a laugh by both teacher and class.

Grade I-A, second division. This class began as I-B in September and is now doing II-B work in reading. The teacher was very vigorous and enthusiastic and had a good appearance. Defects in the mechanics of recitation were not evident in her work. She "motivated" the lesson well. The subject was "The Pied Piper of Hamelin." The class read fluently and with good expression, which was brought out by judicious questioning by the teacher.

Geography:

Grade VIII-A. Present, 25. The recitation was observed fifteen minutes and the study-recitation ten minutes. The teacher's presence was excellent and she showed no defects in technique beyond repeating a question once. She used illustrative material well and gave every opportunity for pupil co-operation. The pupils were interested, asked questions freely, volunteered information and showed throughout a spirit of co-operation and independent criticism. The chief topic of the exercise was "Why is Great Britain a Great Manufacturing Center?" The pupil leader of the recitation did well, and was called on to recite himself by one member of the class. There was considerable illustrative material on the walls and on the table, including a stereoscope with views.

Grade VIII-B. Present, 13. The recitation proper was twenty minutes in length and the study-recitation five. The teacher's presence was excellent and no mistakes in the mechanics of teaching were evident. The subject of the recitation was "Boston." The teacher associated the material of the lesson with past school work and the past

experiences of the children. Full opportunity was given for pupil co-operation. Her assignment was clear and by topics, not merely by pages and paragraphs. The pupil leader of the recitation offered to his classmates a mass of information apparently gathered from several sources. In the study-recitation the teacher encouraged the pupils to formulate "thought questions" bearing on the next lesson.

Grade V-A. Present, 26. Length of recitation twenty-two minutes. The personality of the teacher was good, perhaps a little lacking in enthusiasm, due, it may be, to the presence of a supposedly critical stranger. The teacher's methods were excellent. The pupils were interested and co-operated well with one another and with the teacher. The subject was "Japan." There was no illustrative material in the room which could be used for geographical instruction. The lesson might have been prepared better by the pupils. The pupil leader did very well and the pupils helped him effectively. The teacher only interrupted once by correcting a girl for saying that Japan was bounded on the west by Asia. The teacher was challenged on this point by one of the boys. The teacher made notes of the mistakes made, for later correction. She was not satisfied with the recitation and assigned no new work, but spent the rest of the exercise in developing the day's lesson. The teacher was perhaps somewhat severe. She said to two boys who were particularly ill-prepared: "You are going to get that (the lesson). You are not simply filling a seat and looking handsome. Are you dead?" These boys were detained after school.

Grade VI-B. Present, 15. Length of exercise, twenty-five minutes. Personality of teacher good. Methods good. Subject, "The Rocky Mountains." The class was much interested and contributed by questions and volunteered information. A pupil was in complete control, the teacher—a substitute—taking little or no part in the exercise. One boy told the class of a visit of his brother to the Grand Canyon. Another said he was going to Omaha, and another that the Rocky Mountains were just back of the house of a relative of his. The whole exercise was extremely interesting.

Grade IV-B. Present, 34. Length of exercise, twenty minutes in recitation, five minutes in study-recitation. The personality of the teacher was good but she did not seem to have the ability to manage the recitation so as to bring out pupil co-operation. Topic of the lesson, "the Oceans." Globes and maps were referred to somewhat, but other illustrative material which should have been available was not used. The class seemed interested, but there was no questioning on their part, and but one case of volunteered information. The recitation started under a pupil leader but the teacher soon assumed charge. Pupil administration was only an appearance in this class. During the study-recitation a child would read a sentence and then reproduce its meaning. The whole class then wrote a *résumé* of the lesson and the advance lesson.

History:

Grade VIII-A. Present, 14. Length of exercise, thirty minutes in recitation and seven minutes in study-recitation. The personality of the teacher was good. She showed no defects in the mechanics of the recitation, and she encouraged by her manner and methods pupil initiative and co-operation. The recitation was pupil-conducted. At one point the teacher said "May I ask a question?" She was granted the privilege and used it to point out the main object of the lesson. When a pupil recited, classmates used the right to question him further. When the recitation proper was completed a boy arose and said "This was a good leader." The class applauded heartily. The subject of the advance lesson was the "Visits of Lafayette." The teacher with the pupils developed the main subject and brought out the sub-topics by questioning.

Grade VIII-A. Present, 31. Length of recitation, thirty minutes. The study-recitation was not observed. The teacher, while very quiet, was particularly enthusiastic and successful in stimulating pupil initiative and co-operation. During the exercise the material of the lesson was linked up with that of the past lesson and with the experiences of pupils. The period under discussion was that immediately preceding the Civil War. The teacher had nothing to say save at the beginning and the close. The girl leader was rather original in her questioning. With regard to some move on the part of Douglas she asked "Was this a mark of brightness?" One of the boys asked to describe the character of John Brown observed that "John Brown was very bull-headed and very religious." The unintentional humor of this remark was apparent to the class. Nearly all the children had seen John Brown's house and were familiar with the fact that he was an Akronian. Many had seen John Brown's brother. The only criticism of any moment which could be made of this recitation was that perhaps two girls and one boy took too prominent a part in the exercise.

Grade VIII-B. Present, 19. Length of observation, twenty minutes. This recitation was in most respects typical. It illustrated the fact, however, that it requires much more skill on the part of the teacher to carry out the pupil-leader idea than to do the teaching herself. The teacher frequently interrupted the proceedings of the class. The weakness of pupil instruction when not properly guided was also illustrated. Pupils mispronounced words frequently without correction by either teacher or class leader.

Arithmetic:

Grade VI-B. Present, 25. Length of exercise, fifteen minutes. This exercise was a mental arithmetic drill. The presence of the teacher and her methods were good. The teacher supplied two models on which the pupil leader based her questions to the class. Later all drill questions written on the board by the teacher were taken up. The pupil leader, who was from Denmark, was very accurate and

conscientious and conducted the exercise in better form than some teachers.

Grade II-A. Present, 19. Period of observation, seven minutes. The teacher was rather loud spoken and not very stimulating, but was otherwise up to the mark in personality. The teacher repeated answers and asked leading questions frequently. The class was not particularly interested. Many were tired. There was much yawning and coughing. This was an oral drill exercise in adding and subtracting, followed by work at the board.

Grade VI-A. Present, 18. Length of exercise, twenty-three minutes. The exercise was a drill in improper and decimal fractions and the changing of decimal and common fractions and vice versa. The teacher taught a somewhat inaccurate form of presentation, the only such case observed in the Akron schools. The teacher accepted rather too readily the assurances of the children that they understood. The children seemed to be doing their work mechanically.

Grades VI and VI-B. Present, 33. Length of observation, ten minutes. This exercise was an application of Thompson's tests. In four minutes the pupils were expected to write 120 separate results. Of the 33 present thirteen pupils got all results correctly, and 7 made only one mistake each. One girl finished in 1-1/4 minutes. Thirteen had finished at the end of 2 minutes.

Grade III-A. Present, 19. Length of exercise, five minutes. The teacher spoke in rather a loud voice but was otherwise of excellent personality. She was very successful in motivating her work and securing pupil co-operation. The class was extremely interested and co-operated well. In a corner of the room was established a small grocery store with real packages and canned goods. Imitation money was used. One pupil was in charge of the store. One stood in front of the class and called on individuals telling them how many articles to buy. The children called on went to the storekeeper and gave their orders. The buyer tendered his money and change was made by the storekeeper in the commercial way. Both buyer and seller examined the change.

Grade V-A. Present, 9. Observation lasted ten minutes. Exercise, a drill in fractions of different kinds and their definitions. This was followed by type problems. The teacher was apparently nervous and repeated questions and asked leading questions frequently. She used such questions as "First we'll have to find the part cut off, won't we?" and "It means multiplication, doesn't it?" Nevertheless, the teacher tied up the advance material well with past work, secured considerable pupil co-operation and made a clear assignment.

Civics:

Grade VIII-A. Present, 23. Length of observation, twenty minutes. The teacher's personality was good. She was enthusiastic and particularly successful in stimulating initiative. The pupils were interested and co-operated well. One of the questions discussed was the treat-

ment of discharged prisoners. Some related experiences that discharged prisoners had gone through. In a very lively discussion a great divergence of opinion developed. One girl remarked with warmth, "I think the detective had a nerve to tell on a discharged man." Her sentiment met with general approval, particularly from the girls. Some of the boys took a rather legalistic and unprogressive attitude. The pupil leader corrected a boy for saying "git." At the close the teacher cleared up various points, such as the meaning of a word. A double negative was not corrected. The assignment was the weak point of the exercise—"Start there and read as far as you can."

Oral Language:

Grade IV-B. Present, 18. Length of observation, twenty minutes. The exercise consisted of fluent reproductions of nature stories and poems in the readers. Two were "October's Bright Blue Weather" and Whittier's "Corn Song." The leader was a young Polish boy of nine, who gave the best demonstration of what a pupil can do in leading a class that the director of this study has ever witnessed. He knew what good expression was and succeeded in getting it from the class.

Art Work:

Grade VII-A. Present, 44. Length of observation, ten minutes. The class was making advertising posters as if for various Akron businesses. There were millinery, dutch cleanser, baseball, spark-plug, rubber tire, clay products, and clothing advertisements. Some children were making advertisements for their father's business. Even where children were advertising the same kind of business they adopted different treatment. Some of the work was copy, but most of it contained original elements and some were highly original. The teaching was entirely individual, the teacher sitting down with the children and discussing their work intimately. No work in Akron was better "motivated." None allowed more room for individual initiative or the expression of individual interests. There was a cheerful buzz and hum in the room arising entirely from conversation concerning the work in hand. It was felt that an increase in this sort of work—which is comparatively new in Akron—would have a healthy reflex action on the character of the discipline in classes when purely academic subjects are taught.

(Five other exercises of the same nature were seen. The above description applies essentially to all.)

Spelling:

Grades V-A and VI-B. Present, 49. Length of observation, fifteen minutes. The pupils were interested and co-operated with the leaders, who were two in number, one for V-A and one for VI-B. Each leader dictated words alternately. After the words were written the papers were changed and the correct spelling given for marking. A discussion arose between a pupil and a leader as to the correct spelling of

one word. After the lists were marked the papers were returned and each pupil concentrated on the words he had mis-spelled instead of spreading his effort over the whole list.

Hygiene:

Grade II-B. Present, 40. Length of observation, ten minutes. The teacher interrupted the children somewhat, but motivated the lesson well by tying it up with pupils' experiences and needs, and gave opportunity for pupil co-operation. The exercise was largely of the question and answer type and dealt mainly with the care of the teeth.

(The temperature and ventilation of the room would have made a good topic for class discussion and afforded an opportunity for explaining the system in use. No exercise of this nature was observed.)

Music:

Grades VI-A and VI-B. Present, 31. Duration of exercise, twenty minutes. The personality of the teacher was excellent. She was stimulating and enthusiastic. The pupils were interested, responded with ease and co-operated well with the teacher and each other. The teacher in beginning said "I don't like your position, and I don't believe you would if you were listening as I am." The response was immediate and cheerful. It was interesting to see the teacher pick out the monotones and give each some personal attention. There were not enough music books to go around, a fact which interfered somewhat with the best success. The pupils sang well a song called "The Delights of Spring."

Penmanship:

Grades II-A and II-B. Present, 38. Duration of exercise, fifteen minutes. The teacher's personality was very attractive to young children and she was quietly enthusiastic in her work. The pupils were very interested and a contagious smile went around the room when the exercise started. The teacher began by saying "We're going to have the nicest writing lesson we have ever had, and we're going to use white paper this time." The counting was done by the children. The teacher said "First we'll make some nice, round ovals, tipped over and all touching one another." The form of the suggestion could not fail to affect the quality of the work. To a question of the teacher, "What is the first thing we should do?" the class responded, "Take position," and when the teacher asked "Why?" the pupils responded in chorus, "Because it helps us to write."

(This was the best taught lesson in penmanship seen.)

Descriptive Summaries of Field Notes.

The Teaching of Reading.

The abstracts of field notes quoted above give a fair idea of the character of instruction in reading in the public schools of Akron. The work in phonics is very thorough. The effects of this are seen all

through the grades in power to read new material, in accurate pronunciation, and in clear enunciation. This does not mean that all these are found throughout the system, but that it is remarkable, in a city with such a migratory and growing school population, that results were obtained as good as those observed. A mistake which is often made, namely, reading over and over again of the same material in the primary grades, was not observed in Akron. Vocabulary and power grow not by reading the same book over again but by reading books of varying vocabulary with words occurring in different contexts. This principle seems to be accepted completely in Akron. In some cases—perhaps through oversight—notwithstanding the care of teachers and pupils in mending the books, readers were observed which were not in good condition for putting in the hands of pupils. Particularly in lower grades, this does not tend to develop in pupils a respect for books nor an idea of the importance of cleanliness. Lack of funds should not be allowed to interfere with keeping all text books in the schools above criticism as to physical condition.

On the whole, good expression was obtained in the class-room work observed. This was done largely through judicious questioning by the teacher to bring out shades of meaning. In the upper grades some carelessness in this respect was observed, particularly where the reading was being done in classes other than reading classes. The importance of oral reading as compared with silent reading for the thought is, however, becoming less and less, owing to the rapid increase in reading material available for the public and the more rapid pace at which we live. Reading for the thought content is stressed in the Akron schools and, the writer believes, with good results.

Below is a tabulation of the rating of reading lessons as to technique of teachers and reactions of class:

Teachers (26 in number in 35 Classes)

	Yes	No	Somewhat
No. of Classes in which Teachers			
1. Repeated answers	5	20	1
2. Repeated questions	1	25	....
3. Required definite answers	20	....	....
4. Required accurate answers	23	....	....
5. Completed pupils' answers	0	22	....
6. Asked leading questions	4	20	....
7. Asked pumping questions	1	21	....
8. Interrupted pupils when reciting	3	12	....
9. Taught from text book	1	5	....
10. Associated advance steps with past class work	3	....	....
11. Brought out relative values	2	....	....
12. Used illustrative material	2	....	....
13. Gave opportunity for pupil co-operation in developing lesson	2	....	....

Pupils in 35 Classes

No. of Classes in which Pupils	Yes	No	Somewhat
1. Were interested	25	3	1
2. Asked questions	1	6	....
3. Volunteered information or suggestions	2	5	....
4. Showed other signs of self activity	3	4	....
5. Recited fluently	23	....	1
6. Talked aimlessly	....	17	....
7. Gave incorrect answers	1	15	....
8. Gave hazy answers	....	11	....
9. Co-operated with teachers and classmates	2	....	....

Geography.

Among the most interesting classes observed were those in geography. In these pupil-administration was well developed. In practically all classes observed pupils showed initiative, independence of judgment, power to co-operate and ability to think and speak on their feet. Considerable and effective use was made of maps and globes, though in one or two class-rooms the globes were in poor condition. In some class-rooms illustrative material was lacking, while in others there were considerable collections of material illustrative of industry and physical geography, as well as collections of stereoscopic views with the necessary instruments (See pages 135, 136, 234). The impression of the observer is that greater use might be made of the material at hand. In any event every school should have a school museum collected and classified by the teachers and pupils themselves, and each of the upper grades should have partial class collections. These collections could be duplicated from year to year for educational results,—the present practice in several schools—the best specimens and pictures being contributed each year to the school museum. The lanterns are used effectively in some schools, at least, for purposes of geographical instruction. In some ways the lantern picture is superior to the motion picture, but for the illustration of processes and modes of life the motion picture is coming to be regarded as an indispensable auxiliary. If every large school were supplied with the smaller type of machine, which needs no special apparatus for fire prevention, not only could the teachers use it in their individual class-rooms whenever desired but the equipment would be very valuable for work connected with the larger use of school plant and would prove a valuable means of combating the evil effects of the commercialized moving picture on children and adults alike.

Below is a tabulation of the rating of geography lessons as to technique of teachers and reactions of class:

Teachers (14 in number in 17 Classes)

	Yes	No	Somewhat
No. of Classes in which Teachers			
1. Repeated answers	1	12	3
2. Repeated questions	....	15	1
3. Required definite answers	16	....	....
4. Required accurate answers	16	....	....
5. Completed pupils' answers	4	10	....
6. Asked leading questions	1	14	....
7. Asked pumping questions	1	14	....
8. Interrupted pupils when reciting	....	15	....
9. Taught from text book	1	12	....
10. Associated advance steps with past class work	5	....	....
11. With past experience of children	3	....	....
12. Motivated lesson	1	....	....
13. Brought out relative values	4	....	....
14. Used illustrative material	1	....	....
15. Suggested material for solution of problems	4	....	....
16. Gave opportunity for pupil co-operation in developing lesson	4	....	....
17. Assigned by topics	7	....	....
18. Made clear assignments	7	....	....

Pupils in 17 Classes

No. of Classes in which Pupils			
1. Were interested	16	....	....
2. Asked questions	6	2	....
3. Volunteered information or suggestions	8	....	....

One undesirable feature in the teaching of geography was the too strict adherence by some teachers to the suggestive outline in the Manual of Instruction. In some cases this was written on the board and was followed so rigidly as to give a somewhat mechanical character to some parts of the exercise. This procedure undoubtedly insures that no point shall be overlooked, but it may lead to putting time on features of no importance in the particular exercises concerned. It tends to make teachers fill all exercises into the same frame and to unduly limit initiative. Teachers are prone to forget that the teaching of geography —as of all other subjects—is not so much to squeeze out all the information in the topic as to develop among pupils ability to attack problems on their merits and on their own initiative.

In this connection should be noticed the very excellent practice of class excursions to nearby places and buildings under the direction, of course, of class teachers, and in connection with the regular class-work.

Twenty schools report nature-study trips to the woods; 17, excursions to see land and water formations; 4, trips to the market; 5, trips to shops; 5, to rubber plants; 4, to salt works; 2, to cereal plants; 1, to a tile plant; 1, to a pottery plant; 1, to a paper plant; 1, to a match factory; 1, to a forge; 2, to foundries; 1, to a heating and ventilating establishment; and 1, not described.

Six schools reported visits to public buildings, such as fire-halls, the public library, court house, city hall. Of the nine visits reported under this head, three were made by one school.

The following excerpts from notes of principals are interesting:

a—"Have done little along this line. Use stereopticon views extensively. Children are encouraged to describe their observations during excursion trips."

b—"School too large to make such excursions." (Comment—no such trips should be made except in small groups.)

c—"**Each year the 8th grade makes a trip through the South High School building, noting the various special activities. Find this quite a help in arousing a desire on the part of 8-A pupils to enter High School.**"

d—"Have made visits to city council, police courts, etc." (High School).

This work should be greatly extended in connection with geography, history and civics classes, not only for the sake of the regular school work, but for the sake of citizenship and vocational guidance.

History.

The teaching of history as observed in the Akron schools is similar in general characteristics to that of geography. The pupil leadership of recitations is on the whole well carried out. The study-recitations in which the teachers broke the ground for the new lesson were well conducted. In the recitations the pupils did most of the work and in the study-recitations they did their full share. An interesting and effective method observed was the formulation of "thought questions" by pupils, around which the material of the advance lesson was to be organized. Maps were used well in the geography instruction but there is more room for the use of illustrative material in the nature of historical pictures and objects of interest. The observations above as to the use of projective apparatus in geography apply with equal force here.

Following is a tabulation of the rating of history lessons as to technique of teachers and reactions of class:

Teachers (6 in number in 8 Classes)

	No. of Classes in which Teachers	Yes	No	Somewhat
1.	Repeated answers	....	7	....
2.	Repeated questions	....	7	....
3.	Required definite answers	7	....	....
4.	Required accurate answers	7	....	....
5.	Completed pupils' answers	....	6	....
6.	Asked leading questions	....	6	....
7.	Asked pumping questions	....	6	....
8.	Interrupted pupils when reciting	1	5	....
9.	Taught from text book	1	3	....
10.	Associated advance steps with past class work	2	....	....
11.	With past experience of children	3	....	....
12.	Motivated lesson	7	....	....
13.	Brought out relative values	1	....	....
14.	Suggested material for solution of problems	1	....	....
15.	Gave opportunity for pupil co-operation in developing lesson	2	....	5
16.	Assigned by pages or paragraphs	1	....	....
17.	Assigned by topics	3	....	....
18.	Made clear assignments	4	....	....

Pupils in 8 Classes

	No. of Classes in which Pupils	Yes	No	Somewhat
1.	Were interested	7	....	....
2.	Asked questions	7	....	....
3.	Volunteered information or suggestions	6	....	....
4.	Showed other signs of self activity	2	....	....
5.	Recited fluently	7	....	....
6.	Talked aimlessly	....	6	....
7.	Gave incorrect answers	....	6	....
8.	Gave hazy answers	....	5	....
9.	Answered in words of book	....	5	....
10.	Answers apparently committed to memory	....	5	....
11.	Pupils co-operated with teachers and class-mates	4	....	3

Arithmetic.

The teaching of arithmetic as observed in the elementary schools was on the whole of good quality. Exact comparison with the teaching of geography and history is of course impossible, but it is perhaps allowable to say that the teaching of arithmetic did not impress the observer with the same sense of high efficiency as did that of geography and history. This was perhaps due to a greater human interest on the part of teachers in the humanistic branches. While efforts were made to secure effective pupil administration in arithmetic, and while drill exercises were conducted by pupils extremely well, it could not be said that powers of initiative and co-operation were being developed as well as might be by the teaching of this subject. The mechanical technique of arithmetic teaching was good, in some cases well nigh perfect, but the spirit of joy in the work was not equally high. The accuracy of the pupils in the four fundamental operations in most classes observed might with fairness be ranked as remarkable. The impression received by the observer was that the work in arithmetic on the whole was not sufficiently motivated by being tied up—in the mind of the pupil, not in the mind of the writer of the text book—with those activities of life which seem real to children. As woodworking and cooking extend their influence through the elementary school course, the teaching of arithmetic cannot fail to be immensely benefited. The class in arithmetic described above, conducted with the aid of an actual groceery store, points the way to other similar devices for "realizing" instruction in arithmetic.

Below is a tabulation of the rating of arithmetic lessons as to technique of teachers and reactions of class:

Teachers (15 in number in 25 Classes)

		Yes	No	Somewhat
	No. of Classes in which Teachers			
1.	Repeated answers	2	13	1
2.	Repeated questions	2	14	....
3.	Required definite answers	14	....	....
4.	Required accurate answers	14	....	1
5.	Completed pupils' answers	....	9	....
6.	Asked leading questions	4	7	....
7.	Asked pumping questions	1	11	....
8.	Interrupted pupils when reciting	1	11	2
9.	Taught from text book	....	13	....
10.	Associated advance steps with past class work	3	1	....
11.	Motivated lesson	1	....	....
12.	Used illustrative material	2	....	....
13.	Suggested material for solution of problems	1	....	....
14.	Assigned by topics	1	....	....

Pupils in 25 Classes

	No. of Classes in which Pupils			
1.	Were interested	16	....	3
2.	Asked questions	3	3	....
3.	Volunteered information or suggestions	1	4	....
4.	Showed other signs of self activity	1	2	....
5.	Recited fluently	11	....	....
6.	Talked aimlessly	....	8	....
7.	Gave incorrect answers	....	9	....
8.	Gave hazy answers	....	6	....
9.	Answered in words of book	....	2	....
10.	Pupils co-operated with teachers and class-mates	4	....	....

Physical Exercises.

Some of the most beautiful exercises seen were those in physical drill. They were conducted by regular class teachers, often two classes and two teachers at a time. Those in courts and gymnasia, particularly the latter, were by all odds the best. Frequently pupils acted as masters of ceremonies, some directing from the front and some presiding at the victrola. The greater number of exercises seen were accompanied by music from the victrola. It may be said that all physical drills of the types observed were beautiful and cannot fail to develop grace of motion and posture in pupils. This is particularly true of the "scarf" exercises. Some of the exercises in courts and gymnasia were sufficiently strenuous to produce perspiration, but on the whole one could not help feeling that something more strenuous and making greater demands on the large muscles is needed for the boys and girls in the upper grades. This would necessitate gymnasia and shower baths in all large elementary schools. Disraeli said "Public health is the foundation on which rests the happiness of the people and the strength of the state." It is equally true that the foundation stone of school efficiency is physical training—in its large sense—under hygienic conditions.

Folk Dancing at the Mason School

Physical Culture at the Mason School.

The advantage of physical exercises in the class-room wherever there is mechanical ventilation with insufficient atmospheric humidity is, to say the least, doubtful. It tends to parch further the mucous surfaces of throat and lungs and render them more liable to infection. Where there is no mechanical ventilation and the windows can be thrown open without disarranging the whole system, short physical exercises in the class-room while it is being flooded with fresh air from the outside are highly desirable.

Civics.

The text book used as the basis of civics instruction appears to be an excellent one. The teaching based on it, as far as observed, was good. In some if not all schools the pupils' clubs supplement extremely well the work in civics. As in all school systems in the country, however, a revolution is approaching in the teaching of civics. The civics class of the future will be a laboratory and observation station in community life. Ways will be developed in which children can actually function as citizens. Some years ago, I am told, the schools of Waterbury introduced a course in "Waterbury." The schools of Akron might well offer a course in "Akron" which could be made the point of departure for civics, history, physical geography, commercial geography, industrial geography. Not only should the schools be taken into the life of Akron but the life of Akron should be taken into the public schools. Whatever of Akron cannot be taken into the schools should be eliminated from Akron. Why should there be anything in Akron which at some stage in the course the children of Akron should not know about? Why should the children of Akron at some stage in their course not know of everything in Akron? If these are not presented in time and in the right way in school they will be presented too late or in the wrong way after school. Following is an abstract from the Manual of Instruction:

> "The Akron child is born into the Akron environment. Everything in this city, both material and spiritual, whether natural or artificial, is exerting its influence upon him. The beauties and deformities of nature and art, as shown in the community, are attracting or repelling him. The industrial and commercial activities of the community are challenging his thought. The ministering kindnesses of his family and friends touch a responsive chord in his affections. The rights of property and the restraints imposed by law are brought to his attention. All these influences, together with every other that might be mentioned, are doing their work in the education of the child."

The school in co-operation with the home should take charge of this work.

More important than the formal teaching of citizenship in the class-room are the results in social efficiency of the pupils' organizations

found in the Akron schools. Perhaps the most prominent types among these are the literary clubs, whose objects may be stated as follows:

1—To teach the use of simple parliamentary rules;
2—To develop the ability to discuss topics in a polite manner;
3—To develop initiative and self-control in the individual;
4—To stimulate thought and investigation of things beyond the text-books;
5—To create school and civic pride by awakening an interest in local affairs of the community;
6—To develop the ability to conduct public meetings.

The writer observed with pleasure a regular meeting of one of these societies. To obtain the highest returns it is always necessary to allow the greatest freedom possible to the pupils—even to the extent of allowing them to make mistakes.

Eighteen schools, including the three High Schools, report such clubs. Most of them are in Grades 7, 8, 9, 10 and 11, although they are found as low as the 5th and as high as the 12th.

Eleven schools report girls' glee clubs and nine, boys' glee clubs. The membership of the girls' totalled 319 (including one mixed club) and of the boys', 147. Several of the clubs meet daily.

Eleven schools reported 11 orchestras, with a total membership of 95. Twelve, baseball; 7, foot-ball; 10, boys' basket-ball; 7, girls' basket-ball; and 3 athletic clubs of other kinds are reported. Five schools have Boy Scout organizations and five have girls' clubs of various sorts. Among other students' clubs may be mentioned:

1 Little Mothers' Club.
1 Guardian Club.
1 Social Club.
1 Civics Club.
2 Garden Clubs.
2 Folk Dancing Clubs.
2 Military Companies (High School).
2 Fraternity Clubs (High School).
1 Radio Club.

With the increase in the number of auditoria and special rooms, this work can and should be greatly increased.

Music.

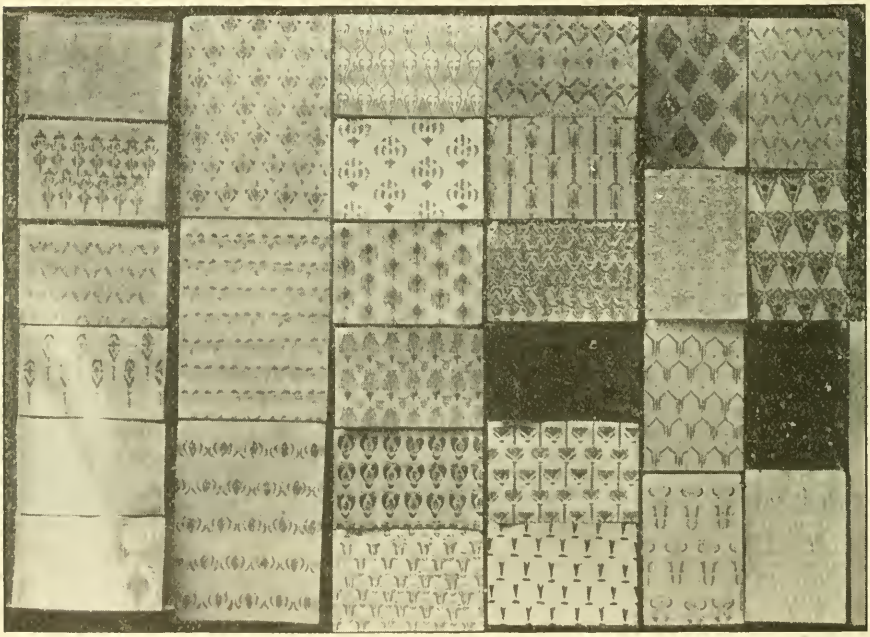
The instruction in music and its supervision in the Akron elementary schools, as far as observed, is excellent in every respect. The only point of weakness noted was the insufficiency in the amount of supervision. As the number of victrolas increases the work in musical appreciation will be extended, and as the schools are supplied with auditoria the number of orchestras will increase and their work improve. Excellent and entirely voluntary lessons in orchestra work were observed. There can be no doubt that the increase in this work will have a powerful effect on the influence of schools in socializing neighborhoods and will contribute greatly to the power of co-operation and the spirit of community service on the part of pupils.

Art Work.

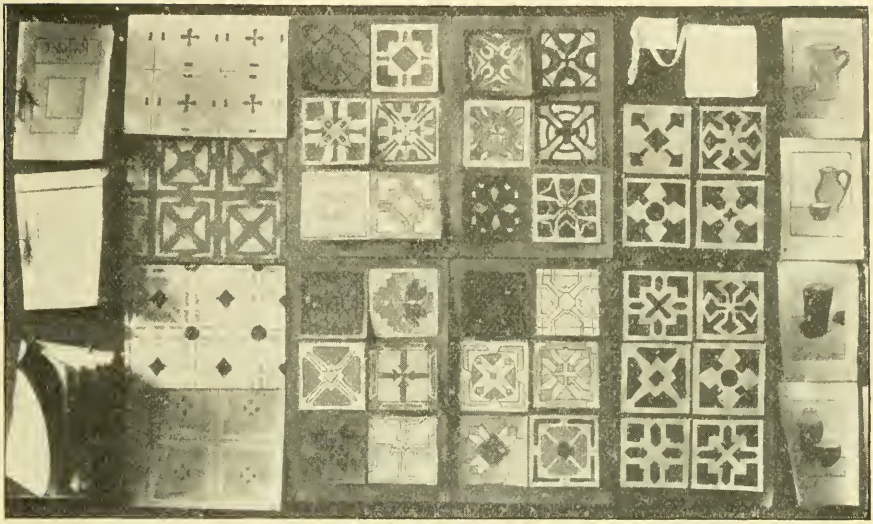
The art work observed in the schools of Akron was of a high quality. Of peculiar interest was the advertising poster work recently introduced into Grades 7 and 8. The extract from field notes above gives an idea of the character of this work. It would be difficult to conceive of any school work more highly motivated from the pupils' standpoint. Pupil interest in all exercises observed was intense, the discipline was more informal and more really educational than that of any other classes observed in Akron, save those in manual training and cooking. The opportunities of co-ordination between language work and this art work are legion and should help greatly to "realize" the written language work of the grades. Below is a series of cuts illustrating the art work in the Akron schools. It will be seen at once that considerable opportunity is offered for motor expression, and that the material is well related to other subjects of the Course of Study and in many cases to the community environment. When shop-work and cooking are added to the Course of Study art instruction as at present carried on will be greatly helped and the pupils wil be given even better opportunity for motor expression and for getting a real insight into the real activities of the workaday world.

ART WORK IN THE AKRON SCHOOLS.

ART WORK IN THE AKRON SCHOOLS.



ART WORK IN THE AKRON SCHOOLS.



Language.

The oral language observed in the lower grades was excellent. It was related very closely to the needs of childhood and its capacity for expression. The opportunities for oral expression in connection with pupil administration in the upper grades could hardly be surpassed. The written language work observed was mechanically good but there was seen no such creative joy or freedom in expression as was seen in the oral work. One exercise seen in composition—described above—was entirely destructive of all initiative or originality. An effort was observed throughout to choose subjects which the teachers thought the children would like. No attempt was observed to see what the children liked by leaving them entire liberty of action. Any written language work to be really educative—not merely instructional—must be creative and original **from the standpoint of the pupil.** Better one expression of a thought that the child warms to as his own than a dozen expressions of thought which somebody else expects him to warm to and which might under other conditions be of extreme interest to him.

The general discussion of language in the official Manual of Instruction is in most respects above criticism and indeed represents an advance on both current thought and practice, but there is one passage which it would seem some teachers may have interpreted too narrowly and without giving due weight to the immediately adjacent context. It is as follows: "The branches provided in this Course of Study furnish abundant material for thought and its accompanying expression. It will not be necessary for the teacher to establish a new line of work, disconnected from the other work of the school, to get material for language. The school life affords the material." In so far as this instructs against establishing an unco-ordinated subject matter in the Course of Study it is of course salutory. But if it mean that the subject matter of compositions are to be limited exclusively to what belongs directly to school life, it would seem to interfere with the free expression of the life of childhood. Freedom is the essence of creative art. If school life included all of life for the child the prescription could do no harm, but until this is the case it must unnecessarily limit. Does not composition supply rather an opportunity to bring extra-school life into the school, to invigorate the life of the school, to make school more real and more vital to the child? If a child is more interested in school processes than in any others, well and good; let him write according to his interest. If not, well and good; let him write according to his interest.

No doubt the Manual of Instruction does not mean to say otherwise. The following excerpts would seem to bear this out:

> "Stimulated by the models in the text book, the thoughts and feelings of children upon the other branches of study in the schools, **as well as upon their everyday experiences,** outside of school, should be modified and clarified, and then expressed in the good forms indicated by the models. Oral composition is even more valuable than written."

"Even the bright boy and girl who are leaders among their companions in everything requiring quickness of wit may become insufferably dreary whenever they attempt to speak or write in the English class. Pupils in the third and fourth grades in the schools often show as much originality, brightness, and power as those in the eighth and ninth grades. It is this lack of growth and this uniform mediocrity that should be combated. Better original, fresh thought, strongly put, in a straightforward way, even though there be many errors in grammar and punctuation, than mincing nothingness in the best form."

"When a child has a thought, really his own, and is seized with a desire to express it to others, his words become more than the clothing of the thought, they become the thought itself by partaking of its character."

"Then teachers should plan, as far as possible, to make the language exercises opportunities for the pupils to express their own thoughts, to some one, for a purpose."

The Manual further says:

"The teacher must select subjects in which the children are interested or in which they can acquire an interest. She will be helped in making the selection by asking herself such questions as these: (a) What do the pupils like best? (b) What do they watch with most eagerness? (c) What do they think most about? (d) What subjects of conversation do they listen to most attentively? (e) Which of their studies are they most alert in? (f) What are the social interests of the neighborhood? (g) What are the predominant interests of the neighborhood?

"If generalities are to be avoided, great care should be exercised in the wording of subjects. Subjects must be limited: Instead of 'Flowers,' use 'How I Prepared My Pansy Bed.' Instead of 'Fishing,' use 'How I Caught My First Bass.' Instead of 'Hamilton's Financial Policy,' use 'How Hamilton's Financial Policy Bound the Rich to the Government.' Instead of 'Foot Ball,' use 'How to Make a Drop Kick.' Instead of 'The Doctrine of States' Rights,' use 'How I Felt When I Heard the Webster-Hayne Debate.'"

This is good but in addition large opportunity should be granted, even if it spoils the symmetry of the teacher's plan, for pupils of all grades to select with complete freedom the topics about which they wish to talk or write.

Every citizen of Akron who is interested in the teaching of English should read over carefully the Manual's general discussion of language. It is an able treatment, understandable by every one, and is particularly valuable in its consideration of the relative place of form and content, the dangers of formalism in language work, the correction of compositions and the place of "Automatic School Administration" in language work.

Spelling.

One strong feature of the spelling course in Akron is the minimum list of 120 words, ten of which are to be thoroughly learned during each year of the school course. This is a good list, evidently selected on scientific principles. Another excellent feature is the device described in one of the lesson field notes above, by which words the children can already spell are eliminated so that attention may be concentrated by each child on the words he cannot spell. Sight, hearing, and the muscular sense are all appealed to so that one sense may enforce the others and so that the peculiarities of all children may be considered. It is doubtful whether syllabication is taught more thoroughly anywhere. Words for spelling are also selected from the subject matter of lessons in other subjects. One study recitation observed was a model of what can be done in helping pupils to study spelling. As in nearly all school systems, however, the lessons observed were mostly too mechanical and lacking in interest. In fact the subject seems to be accepted frankly as a purely mechanical one. The meaning of a word was rarely if ever referred to in the classes seen, and their use in sentences was not at all prominent. This presumably was taken care of in other classes.

It is a doubtful point, however, whether spelling can be taught well except in very close conjunction with other language subjects in the course. Perhaps a suggestion might be made that the teaching of spelling in the upper grades be more from the functional viewpoint. The more ways one can look at a word the more interesting it becomes, the more easily it is learned, and the more firmly it is retained. The word in a sense is a living, changing, individual thing, with a past, a present, and a future. Might not spelling be taught from the word-study viewpoint, which would include the past and present functions of the word and its etymology or history? The old study of simple Latin, Greek and Saxon roots might well be revived in elementary schools as a vitalizing force in the teaching of spelling. When the spelling of English is finally put upon a rational instead of an impressionistic basis, years will be saved in the teaching of reading and spelling. In the meantime, spelling will remain one of the most difficult subjects in the curriculum to teach well.

3. Omissions from the Elementary School Course in Akron.

As pointed out in a previous chapter, the noticeable omissions from the Elementary School Course in most schools of Akron are:

Manual Training.
Household Arts.
Gymnasium Athletics, and
Swimming.

It is true that the Bowen School and the Jennings, which have High School grades, offer all these features except that of swimming and that the elementary grades in high school buildings have some of these advantages. At the most, however, these facilities affect a

small proportion of the total elementary school population. For example, only 87 boys in the elementary grades receive instruction in wood-working, and only 94 girls receive instruction in Household Arts, including cooking. On April 29, 1917, there were 623 pupils in Grade VIII-A; 492 pupils in Grade VIII-B; 754 pupils in Grade VII-A; 704 pupils in Grade VII-B; 954 pupils in Grade VI-A; and 790 pupils in Grade VI-B. In the High Schools 830 boys received instruction in wood-working, forge work, etc., and 1053 girls in dress-making, sewing, cooking, costume designing, house designing, furniture designing and kindred subjects.

It should go without saying that every boy in Grades 7 and 8 should receive Manual Training instruction, at least to the extent of the wood-working, that boys of 13 and over in the lower grades should also receive such instruction, that all girls in Grades 7 and 8 should be taught Household Arts, including cooking and the selection of foods, clothing and household furnishings, and that all girls of 13 and over in the lower grades should have at least equal opportunities.

Every school which has 300 boys and 300 girls in Grades 7 and 8 could easily employ full-time teachers in Manual Training and Household Arts. As these teachers cover courses which would be of value to children who have left school and to young adults they should not be expected to teach the regular classes for more than five hours each day, so as to make possible evening and Saturday classes for community extension work.

Where schools are of smaller size they might be grouped about a central school which would contain the necessary. rooms and equipment.

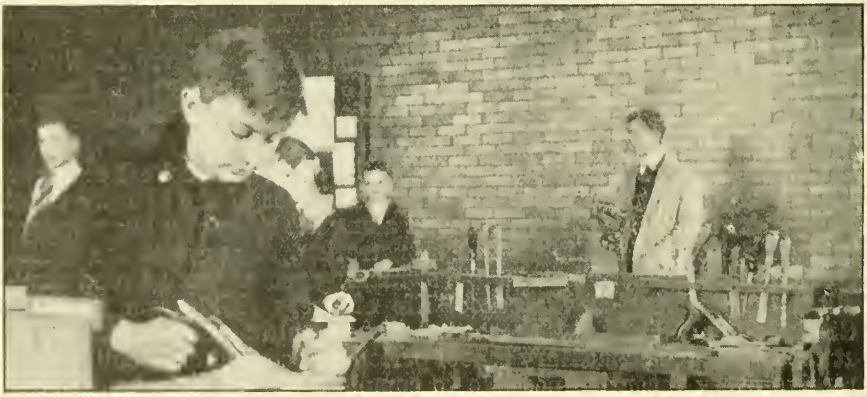
In parts of the city where buildings may be erected in the near future, attention should be given to the advantages of the Junior High School work which covers the work of Grades 7, 8 and 9. Such a school might have shops and kitchens which could supply the Manual Training and Domestic Art needs of surrounding elementary schools, some of which might not go further than the end of the Sixth Grade. As the teaching periods in these subjects are longer than in ordinary classes there would be no appreciable loss of time even if it was necessary to send classes from an elementary school to a Junior High School during the periods from school opening to recess, from recess to the noon closing, and for the afternoon session. Where all Grades 7 and 8 of a locality were contained in a Junior High School, together with the Grade 9 children from the district, the work could be put on a semi-departmental basis.

In new parts of the city where there is, as yet, no school construction, it would seem well to study the possibilities of the plan by which independent school units are grouped along the sides of a large square, around a central building for administration, class-rooms for special teaching, auditoria, gymnasia, and swimming pools. Such a plan would allow the unifying of the school life of every child from the First Grade to the end of the 12th, so that there would be no artificial break at the end of the elementary school period and so that each child would receive every incentive possible to complete the public school course.

A Cooking Class at the Bowen School.

A Sewing Class at the Bowen School.

A Wood-working Class at the Bowen School.



Some "shift" plan not involving departmentalization (see pages 53-56) could be used with either of these types.

Everyone who has taught in a High School must be fully sensible of the disadvantages which complete departmentalizing entails. These disadvantages are greatly increased when the system is applied to elementary grades. In the High Schools, the demands of the times, the influence of our higher institutions of learning, and the immense increase in the subject matter taught, make the departmental system a necessity. Among the results of the system which may be combated with more or less success in the cases of children of high school age are the following:

1st—When teachers become specialists in any subject they begin to lose touch with other subjects, and find it difficult to keep clearly in mind a view of the content of the curricula as a whole.

2nd—Specialists tend to exact from the pupils a greater amount of time for their specialty than is warranted, with the results, first, that there is competition between teachers for the greatest amount possible of the pupils' time, and, second, that in many cases, if pupils were to study all the time that their various teachers demanded, they would have an insufficient period left for recreation and sleep.

3rd—Complete co-ordination in the different subjects of the course is absolutely impossible and even fair co-ordination can be effected only by great vigilance and the adoption of special devices. Where a teacher handles all the subjects of the course, except a few special ones, she knows just exactly the abilities and limitations of each member of her class with regard to every subject in the course. She can cut down the time to be given to one subject and increase the time to be given to another subject by any particular pupil. She knows just exactly what is being taught in history and when. She knows just exactly what is being taught in geography and when. She knows just exactly what is being taught in literature and when. She is, therefore, in the position of re-enforcing the teaching of one in the teaching of all, and tying up the related or common points in all subjects of the curriculum. Time was when, in a Scotch hamlet, the dominie would take a boy from his primer to entrance into the University and teach everything from the A, B, C's to differential calculus; but that time has gone, never to return. We should be ashamed, however, if we cannot give our elementary school teachers a sufficiently broad basis of scholarship and interest to enable them to teach all the subjects of the elementary school course, excepting those special subjects which need highly specialized equipment.

4th—This world is not made on the principle of water-tight compartments. In the world there is actually no such thing as geometry, or chemistry, or physics, or arithmetic, or grammar. These are all the creation of the logical mind of man who has set up these categories to help him in his conquest of nature. They are based on logical, not psychological nor natural, distinctions.

When the average boy graduates from the college, and even from the High School, he has lost most of that sense of the unity of creation which he may have had as a child. The world for him, in effect, is in water-tight compartments and when he gets out into the world he is at loss because he cannot find the compartments. How much more would this be the case if departmentalizing were extended down to the kindergarten?

5th—The only safe basis for any special discipline is a foundation of general education, thoroughly related and inter-related in all its parts. This principle has been seriously threatened of recent years and until we return to the belief that sound specialization is only possible on a basis of sound, wide and deep general knowledge, our specialization is apt to be superficial, inaccurate and unimaginative.

6th—The good teacher is a specialist in children, not a specialist in subjects. **The specialist instead of teaching the child usually puts the emphasis on teaching the subject.** This is noticeable even in the teaching of most special subjects in the elementary grades, when the children are young and need most careful consideration of their individual peculiarities.

There may be conditions where the only way to handle the school population in the cramped surroundings available is to adopt some variety of the two-platoon system. No satisfactory proof has ever been adduced that either the capital or current charges are smaller under the two-platoon than under the ordinary system. The basis for the claim that such is the case is due to the fact that where schools have already auditoria, gymnasia, and swimming pools which are occupied but part time, the per capita cost of instruction and of buildings is greatly cut down by the use of the whole plant under the two-platoon system. Where all these things have to be supplied there is little or no saving. However, buildings may be so remodelled without extension in floor area that they will hold a greatly increased number of children under a two-platoon system. The increased cost of plant, however, and the increased number of teachers required to give equally satisfactory instruction bring the costs up to normal. The great advantage is not in improved instruction but in the possibility of accommodating children who could not otherwise be accommodated. Wherever they are practicable, the Junior High School or the group plan have all the financial advantages of any two-platoon system, without its apparently inevitable disadvantages.

If there is a district in Akron which is extremely congested or where the necessary land for extension is of a prohibitive price, an experiment with a two-platoon system could do no harm and might do much good. All the extra equipment and special plant would be needed for any type of school so that there would be no loss in capital expenditure. It is possible that some modification of the plan might be worked out by which most of the difficulties could be practically solved. In any event, a good school of any type is preferable to a poor school of the best type.

The writer is convinced, however, inasmuch as it is preferable on purely educational grounds, that some such "shift" system as is outlined on pages 53-56 offers the best solution for congestion and of the problems involved in the economic use of physical plant and equipment.

III. INSTRUCTION IN THE HIGH SCHOOLS OF AKRON.

1. General Characteristics.

In general, the characteristics of the class-room teaching in the High Schools of Akron are the same as those of the teaching observed in the Elementary Schools, with this difference, that the instruction was departmentalized. The operation of pupil administration was observed everywhere. As in the elementary schools, all exercises were divided into three stages:

1st—Study-recitation.
2nd—Individual study.
3rd—Recitation.

The observer gained the impression that in the mechanical technique of instruction, teaching in the High Schools is not quite equal to that of the grades. In spirit, in originality of treatment, in naturalness of discipline, in consideration for the individuality of the child, the High Schools seem fully equal to the elementary schools.

2. Class-room Observation.

The number of classes observed was comparatively small so that it was not thought advisable to make a detailed analysis of the field notes. Excerpts from these notes, however, fully illustrative of the work observed, are given below:

1st—Grade XI-B.

Number of pupils in the class: 12.

Subject: Physics.

Topic: Metric and English Measurements and the Steam Engine. The teacher was neat in appearance, vigorous, dignified, and seemed to have a sympathetic attitude towards his pupils. He spoke in an easy conversational tone of voice, and did not occupy an undue amount of the time in talking.

The small errors in technique so often found in the class-room, such as repeating answers and asking leading questions, were not observed. The pupils recited fluently and the teacher exacted complete and accurate statements. The pupils were interested, although several members of the class did not seem sufficiently familiar with the subject matter of the lesson.

If any criticism were to be offered, it would be that the teacher was rather too much tied to his text-book.

2nd—Grade X.

Number of pupils present: 19.

Subject: Composition.

Topic: Description of a Building.

In personality the teacher of this class was everything that could be desired. She was vigorous, sympathetic, dignified, spoke in a conversational tone, was enthusiastic herself, and stimulated originality and co-operation on the part of the class. No defects in the technique of instruction were observed. The teacher was particularly successful in motivating her instruction and in associating the material with past class work and with the experience of her pupils. The opportunity for pupil co-operation was as complete as could be desired. Assignments were clear and by topics. The pupils were interested, asked questions freely, volunteered suggestions, and read their original compositions with fluency. The pupils criticized one another's work freely and frankly. In the study-recitation period which succeeded the recitation, the teacher had the pupils read the advance lesson, explaining where necessary and emphasizing the important points. The teacher ended by requiring members of the class to tell how they proposed to study the lesson.

3rd—Grade X.

Number of pupils present: 12.

Subject: Economics (Social Problems and Current Events).

Topic: The British Drive, and the Allied Commissions Visiting Washington.

The teacher spoke in an easy conversational tone of voice and had apparently established sympathetic relations with her class. She showed complete mastery of the subject matter and, while apparently somewhat disturbed by the presence of visitors, developed her subject well. This class, perhaps more than any other observed, was having noteworthy success in the development of initiative among the pupils, and the spirit of group co-operation. In the study of Current Events, pupils were required to go to the board and point out the places mentioned in the daily press. The expression of opinion was very frank. Toward the end of the period the teacher distributed pamphlets which were reports from the different states on Child Labor Legislation. Each pupil was to write a *résumé* of the Child Labor Laws of the State assigned to him. These reports were obtained, not by the teacher, but by the pupils who wrote to Washington and the different State capitals for the necessary documents. This class was not only a class in Current Events, Economics and Sociology, but is doing excellent work in training for citizenship.

4th—Grade X.

Number of pupils present: 8.

Subject: Modern History.

Topic: India.

The teacher had good address and apparently was sympathetic toward her class. She spoke in a low tone of voice and did not occupy much of the time in talking. The teacher was nervous and did not do herself justice. The pupils seemed interested and recited fluently, although somewhat disturbed by the presence of visitors. The class had a pupil leader, but as it was necessary for the teacher to do considerable of the questioning, there were really two leaders. An outline map made on the black-board by one of the pupils was used very effectively by the class. The class was assigned "Canada" for the next lesson, after finishing India.

5th—Grade IX.

Number of pupils present: 15.

Subject: American History.

Topic: The Spanish-American War and Succeeding Period.

The teacher's class presence was excellent and her methods, on the whole, good, although occasionally answers were repeated. The pupils were much interested, asked questions freely, volunteered information and suggestions, and recited with great fluency. The recitation was conducted by a pupil and the teacher had very little to say while the pupil was in charge. The answers to some of the questions were left in a rather indefinite position, perhaps designedly. One of the pupils expressed her mystification with regard to the conduct of the Philipinos by asking this question: "What's the matter with the Philipinos, anyway?" This was typical of the unconventional method of conducting the discussion. One of the pupils asked this question of another pupil: "Compare the work that Roosevelt did in the Spanish-American War with what he is trying to do now." During the last ten minutes of the exercises, the teacher made the assignment for the next lesson and suggested methods of attack. During this part of the exercises the pupils asked some very good questions.

6th—Grade XI.

Number of pupils present: 20.

Subject: English Literature.

Topic: Macbeth.

This was a recitation conducted by the teacher. The observer, however, has never seen an exercise conducted ostensibly by the teacher which was really so completely managed by the class. The teacher spoke little, asking a question or making a suggestion here and there. The teacher was fully *en rapport* with his class and his class with him. None of the small mistakes in the technique of recitation were observed. The teacher insisted on definite and complete answers. He made frequent connections with past work done by the class and drew on the personal experiences and opinions of the pupils to throw light on the questions which were being discussed. The teacher not only himself

showed a power of keen analysis, but was able to secure a critical and analytical attitude on the part of the class. The interest of every pupil in the class was at white heat, questioning was frequent and searching, several members of the class offered their own points of view. One of the questions at issue was whether Shakespeare made a mistake by having Macbeth killed. One boy said that a mistake had been made, just as a mistake would be made if the Kaiser were put to death instead of being sent to St. Helena with Roosevelt as Governor of the Island. Among the points discussed by the class were:

First—Who was blameworthy for the fall of Macbeth—the witches, Lady Macbeth, or himself?

Second—Was Lady Macbeth ambitious for herself or for her husband?

Third—Who was responsible for the first murder, the second murder, the third murder?

Fourth—Who should have killed Macbeth?

Fifth—How should he have been killed?

One of the boys put the responsibility for Macbeth's fall on a percentage basis. He assigned 15% to Macbeth, 80% to Lady Macbeth, and 5% to the witches. Another boy volunteered the belief that Macbeth killed Banquo as a grand-stand play.

This was one of the most lively, natural, and fruitful exercises observed in Akron.

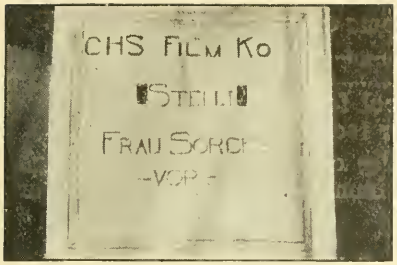
An assignment for the next day's composition was made at the end of the period, as follows: A defense of Lady Macbeth or a newspaper account of the banquet.

The observer was particularly interested in the close co-operation which is being effected between the domestic art instruction and the art classes.

In addition to these exercises, classes were seen in German, sewing, folk dancing, art, geometry, gardening, Latin (Cicero), chorus work, etc. At one of the High Schools, the observer was so fortunate as to be invited to a lunch prepared and served by young ladies of the school.

The lessons in German observed were particularly good. Practically all the class work was conducted in German. Several members of the classes showed considerable power in the oral composition work.

One class had organized a moving picture company for the illustration of the text being read. It is true that the "film" was wound on rollers, but the results were capital and every member of the class displayed interest.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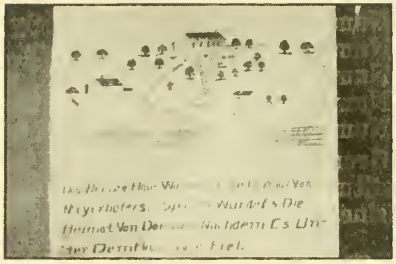
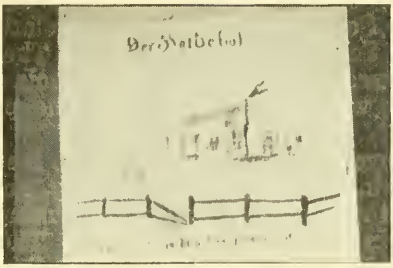



Der Meierhof


Der Spaziergang


Der Friedhof

The important effect of the High Schools of Akron on the community life is shown by the following table:

Number graduated in 1916	242
Number who went immediately into some employment	109
Number who went to college	101
Number who went to normal school	13
Number who went to some other school for special training	11
Number who neither went to work nor took further training	8

Over half of the number of graduating classes went to some high institution of learning and 45% went immediately into industry or business.

3. The Relative Weight of the High School and the Elementary School in the Life of the Community.

The clearest impression that one gets in comparing the High Schools with the Elementary Schools of Akron is the relative richness of the content of the High School Course of Study. The opportunities for motor expression offered by the elementary schools are not to be compared for a moment with those afforded to the pupils of the High Schools.

All High School boys in Akron have access to instruction in several forms of manual work, including wood-working, and all High School girls have access to thorough instruction in cooking, dietetics, household economics, art in the home, and sewing. The physical instruction given in the High Schools is strong. Excellent special teachers are employed and the character of instruction offered is fully up to standard. All High School buildings have auditoria which, to a large extent, form the centers of pupil and, to some extent, of community life. On the average the High Schools function much more strongly as centers of community interest than do the elementary schools.

When it is borne in mind that every child goes to the elementary school, that out of every one hundred children who enter the elementary schools not over from 15 to 20 graduate from the High Schools (a proportion which is away above the average for the country), and that for every High School center there are seven or eight elementary school centers, it must surely be admitted that the time has come for change in emphasis which will lead:

1. To the increase of the motor elements in elementary school instruction;
2. To the increase of opportunities in the elementary schools for boys and girls to discover their individual aptitudes;
3. To the equipment of each school building to serve as a center not only of child but of adult education;
4. To the planning or re-planning of every elementary school so that they may serve as the main social centers of their various districts.

Only by the adoption of a program like this can the people of Akron reap the fullest returns from their investment in school plant and equipment.

4. The Night Schools of Akron.

The Night Schools of Akron owe their existence to private endeavor, the Board of Education not having sufficient funds to support them. The financial support is supplied by the Chamber of Commerce, the supervision and control by the Board of Education.

During 1916-1917, 25 classes of foreigners were taught at five public school centers. These classes were held for two-hour sessions for four nights a week from October 2nd to April 19th. The instruction was mostly—as it should be—in the English Language and Citizenship. Classes were held in Mechanical Drawing also. The results as far as these can be judged by statistics were excellent.

The 1300 students enrolled represented 43 nationalities. Most of these came from the large factories, who co-operated with the management in careful follow-up work and in many cases rewarded effort by promotion. What the success of the night schools means to Akron can hardly be over-estimated. The concluding paragraph of the report of Supervisor Gould illustrates well the spirit of the work and the outlook of those responsible for its direction:

> "I wish to emphasize these facts: First, that the night schools have been a real melting pot for the alien in Akron. Second, that the extent of the work has been very broad and has reached nearly every organization in the city. Third, that the schools have been instrumental in making citizens of many aliens. Fourth, that they have sown the seed of advancement and Americanization which will grow and spread. Fifth, that hundreds of aliens have been taught to speak and to read and to write the American language."
>
> "In conclusion, permit me to offer the following recommendations: First, that the public night schools be continued year after year. Second, that a closer interest and co-operation be developed between the employer and the schools. Third, that a text book emphasizing local conditions be prepared and used in the schools."

The following recommendations are made with regard to night school and related work:

a. That the support as well as the control of the night schools be assumed by the Board of Education at the earliest possible moment;
b. That the night schools be affiliated with the community center work which should be carried on in all the large elementary and High Schools, and that they be under the direct supervision of the 3rd Assistant Superintendent, recommended on page 173 to take charge of all special school activities;
c. That the scope of the work be increased so as to use as much as possible of the expensive High School equipment and similar equipment to be supplied later to the elementary schools;
d. That arrangements be made with employers so that youths under 20 can receive day instruction for from 3 to 6 hours per week in lieu of night instruction, which is very hard upon growing young

men and women and gives results not comparable in any way to those of day classes;

e. That the recommendations of the Supervisor of Night Schools with regard to a local text-book be carried out.

5. Vocational Training Through Co-operation Between the High Schools and Commercial and Industrial Concerns.

Of recent years the development of co-operative courses by which students receive their theoretical training in the schools and practical training in the vocations in the work-shops and counting houses, has been phenomenal. The City of Cincinnati stands in the forefront in this respect, but there is now a long list of communities which have adopted the principle.

Extremely rich cities may be able to finance the construction of a sufficient number of workshops to take care of all the shop work of the boys and girls demanding vocational training, but for the community of ordinary resources the only way to meet the community's needs is to make use of the resources of the school for formal instruction and of the expensive equipment of private industry for practical instruction. The suspicion is gradually dawning on a great many people that a method which was adopted as a result of economic necessity may, in fact, be the best method of vocational training, both from the standpoint of education and of industry. The bringing of the school into the factory will undoubtedly improve the hygienic conditions and the moral tone of industrial establishments, while the bringing of the workshop into the school will tend to "realize" school instruction and give the boys and girls a picture of the actual conditions they will have to face when they go out into the world. In the long run, the co-operative system is bound to give the quietus to the "white collar ideal" of large numbers of our youth.

Whether the industries and commercial undertakings of Akron are of such a nature as to make possible co-operation between the shops and offices and the schools for educational purposes can be determined only as a result of investigation on the spot, carried on by those who would have to work any co-operative arrangement which might be established. Such a study would be well worth while and should be perfectly feasible in a city with a Normal School, well developed High Schools, a University, a live Chamber of Commerce, a Bureau of Municipal Research, and many prosperous manufacturing and commercial concerns.

6. The Schools in Summer.

The writer regrets that he was not able to inspect the play ground work carried on by the Play Ground Association during the summer. Several photographs are shown, however, illustrative of the character of the work. The whole summer program can be greatly strengthened if the recommendation of this report be adopted calling for the appointment of an Assistant Superintendent in charge of special activities.

An Activity Worth Developing.

Three Pageant Pictures.

IV. EDUCATIONAL ADMINISTRATION AND SUPERVISION OF INSTRUCTION IN AKRON.

That the administration of purely educational matters and the supervision of class-room instruction in Akron are conducted by the professional authority without undue interference from the lay authority is very evident. As far as the observer could determine, no considerations other than what is conceived to be in the best interests of the children are allowed to influence the educational policy.

The professional administrative and supervisory staff consists of:

One Superintendent of Instruction.
Two Supervisors of Music, and
Three Supervisors of Drawing and Art

all giving full time to the work. How such a small staff has been able to get the results which are actually obtained was the cause of perpetual amazement to the observer. It should, of course, be borne in mind that the principals of the High Schools and of the large elementary schools are supervising principals. The elementary school principals give on the average 16.7 hours per week out of 39.5 hours to general class-room supervision. (See p. 217.) Many of the principals have had wide training and experience. Only the most complete accord between the Superintendent and the principals could make it possible for one man even to attempt to supervise the work of 576 teachers even when, as in Akron, the principals are free from routine work and teaching for a considerable part of each day. As it is, the Superintendent of Instruction often works from 6:30 in the morning until 6 at night, without a luncheon period. He clears off routine matters in the early part of the morning and after school closes in the afternoon. For the greater part of the five-hour school day he is in the school buildings and the class-rooms. Each week, on the average, the Superintendent puts in from 20 to 25 hours in class-room supervision, 5 hours in clerical work, 5 hours in teachers' meetings, 3 hours in meeting parents at his office, 10 hours in purely business administration, 5 hours in committee meetings and 5 hours in general functions connected with the welfare of the community. It is much to be doubted whether a system of equal size can be found where the Superintendent of Schools actually does as much class-room supervision as is the case in Akron. When one considers that in the Superintendent's office there is only one employee to assist in keeping the records and to handle the correspondence and take charge of the telephone, and that the work on the switchboard for one period of the day is actually done by the Superintendent himself, it is evident that the results obtained can only be at the expense of the Superintendent's vitality. It would appear that the present conditions have grown up as the result of two factors:

1st—Until comparatively recently the system was of a size which would enable one man to keep his mind upon most of the details of school administration without undue demands upon his time and strength;

2nd—As the system has grown the financial pressure has been so great that apparently it has been thought wise to economize at the expense of the supervisory function.

The system has reached and more than reached the limits of its elasticity. It would be impossible to extend the work of the schools without increasing the supervisory force. In fact the present supervisory functions could not be carried on except for the fact that the present staff has grown up with the system. The very same staff coming into office now, new to the conditions, would be swamped. It would be the part of wisdom to make the required reconstruction now before it is forced by the logic of stern necessity.

The effects of the present conditions on the school system may be summarized as follows:

1st—The necessary uniformity in the system has to be accomplished by regulation rather than by suggestion and co-operation as the result of plans worked out between the Superintendent, supervisors, principals and teachers, through extended study and conference. (This does not mean, of course, that there are not meetings between the Superintendent, supervisors, principals and teachers. The data given as to the use of the time of the Superintendent, principals and teachers shows that considerable time is given to teachers' and principals' meetings. The supervisory force, however, is not sufficiently large to make these meetings function fully in the management of the Akron schools.)

2nd—The fact that the Superintendent has no Assistant Superintendents deprives the system of a sufficient number of different points of view on various educational problems. Any system to be really alive and growing must allow room for an adequate amount of leadership. Without this it is possible to obtain uniformity which may or may not be in the interests of educational efficiency, but it is practically impossible to obtain the sort of uniformity which allows for free play in all parts of the machine where rigidity is not essential.

3rd—The time and energy of the Superintendent is so largely consumed in attending to the multitudinous needs of each hour that he can have little opportunity for the working out of the larger educational policies and those larger relations with the community which constitute him, as it were, the community leader and spokesman on educational topics, and the connecting link between the community and the school. The most effective creative work demands freedom from anxiety and the interruption resulting from petty details. That in spite of the tremendous growth of the system and the increasing financial demands, the Superintendent has been able to secure the results in class-room instruction described in preceding pages, is a tribute to his faithfulness and to his tremendous grasp of details and power of sustained work. It is evident, however, that the present policy is extremely short-sighted and unjust to the supervisory staff, to the principals, the teachers, the pupils, and the taxpayers.

4th—Owing to the small size of the supervisory staff and the consequent impossibility of securing the necessary equivalence, though not identity, of the various work of the schools through consultation and study, it has not been found possible to accord to the various school principals the amount of independent leadership and, therefore, of responsibility which they are able to carry. **Such a decentralization of authority and responsibility can only be worked out safely where there are a sufficient number of points of contact and avenues of personal communication between the Superintendent and the principals and teachers; but where it can be accomplished the vitalizing effect upon principals, teachers and children is immediate and salutary. The character of the service rendered always improves with the delegation of increased power and responsibility. Free American citizens with initiative and independence of thought can be developed only by teachers and principals who themselves are conscious of their freedom and their responsibility for exercising initiative. The more freedom and initiative which can be left to the teaching force, consistent with the legitimate demands for equivalence and uniformity, the better for the human product of the public schools.**

5th—The predominance of the feminine element in the teaching force of Akron might be modified to the advantage of the community if one of the Assistant Superintendents suggested above were a man of understanding, ability and experience in the profession. Of the 576 teachers and principals in the employ of the Akron Board of Education, 524 are women. Every regular classroom teacher in the elementary schools is a woman and of the whole teaching force of the elementary schools, numbering 461, only 8 are men. Failing the necessary financial support to introduce a larger number of men teachers into the grades, the appointment of a strong man as first Assistant Superintendent—as suggested above—would go a long way to remedy the weakness.

The following organization of the supervisory force is suggested:

1st—A Superintendent of Schools, having the general oversight of the system;

2nd—An Assistant Superintendent of Schools, preferably a man, having charge of the supervision of instruction in the Grammar Grades;

3rd—An Assistant Superintendent, preferably a woman, having charge of the co-ordination of instruction in the primary grades;

4th—An Assistant Superintendent, preferably a man, to have supervisory charge of all special school activities and community center work;

5th—A sufficient number of supervisors of special subjects, such as art work, domestic art, manual training, music, etc., to secure the best results in co-operation with the various principals and teachers of the regular classes.

School Studies and Educational Tests.

Surveys of various features of the Akron schools have been made by principals and reported at principals' meetings. Reports of other surveys have been studied for comparative purposes. New devices, new processes and experiments in education have been discussed by the principals as they have arisen. All tests held in the system are tabulated and the results distributed to the various buildings, and are often considered at regular meetings.

Normal school students are trained to make vision, hearing and temperature tests and are given a general insight into the Binet-Simon standards. Principals are equipped to make these tests in actual practice, as well as those in vision, hearing and temperature. The Binet-Simon tests are now under the jurisdiction of the specialist of the Health Department in mental tests.

V. EDUCATIONAL RECORDS AND REPORTS IN AKRON.

The completeness and thoroughness of the education records in Akron should be a great source of satisfaction to the supporters of the public schools. Not only are the routine records of attendance, promotion, etc., sufficient for administrative purposes, but for fifteen years Akron has had in full operation the system by which each child has an individual record card for his whole school course. Many communities have not yet adopted the individual record card with the result that in Akron, which receives so many children from outside, the records of many children are incomplete. The value of these cards for administrative purposes is, therefore, diminished. Nevertheless the passing on of the cards with the pupils, gives the new teachers an insight into the individual needs of the pupils which could not otherwise be obtained. The reports of over-age children based on these records are very complete and contain statements of the causes of over-age. Probably for the reason of the incompleteness of the individual card records, reports on retardation, or slow progress through the grades, have not so far been made. The relations between over-age and retardation are explained below.

Reports on elimination of pupils, i. e., their dropping out from school before completing the course, have not been issued. A very slight addition to the present records would make this possible. In spite of the raising of the working age there can be no doubt that this information would be valuable as a basis for follow-up work. Many children might possibly be saved for school by removing the causes of their dropping out. Many children who must drop out might be greatly benefited if the school were to continue its relations with them until some years after leaving school.

The most regrettable lack, however, in school reporting in Akron is the absence of an Annual School Report to the citizens giving, in language that the layman can understand, the salient facts as to how their children are being educated, what the schools need and why, and how the taxpayers' money from taxes and bond issues is being spent. A report of intense human interest, based on the wealth of material

readily available, could be issued annually or quarterly, or both. The cost in dollars or time would be infinitesimal compared with the good which would result. The annual and quarterly report, if properly prepared and written, is one of the best methods by which people's trustees may take the people into their confidence. One of the greatest causes of suspicion and lack of sympathy in all communities is the absence of the necessary information at the right time and in the right form. Adequate knowledge and understanding produce sympathy, sympathy enables effective co-operation, co-operation engenders sympathy and sympathy enlightens knowledge and produces understanding. The firm establishment of such a wholesome circle in Akron is the first step in a community program of education.

VI. PROMOTION OF SCHOOL CHILDREN IN AKRON.

1. General.

Paragraph 58 of the Manual of the Board of Education of Akron reads as follows:

> "CONTROL EXAMINATIONS: He (the Superintendent of Instruction) shall fix the time and prescribe the mode of promotion from class to class, and determine the conditions thereof, and shall prepare the examination questions when any such are required for promotion to the High School, so that they may be equal and uniform throughout all the schools. He is also authorized to conduct such other examinations, and at such times as in his judgment may tend to promote the best interests of the schools. In conducting said examinations, and in ascertaining their results, he may require the aid of such teachers as he may call upon for the purpose."

It appears that the promotions below Grade VIII-A are in the hands of the various principals and teachers and that promotion from the Grades into the High School is determined as the result of the term marks given by the teachers, and the mark on uniform examinations set by the Superintendent.

With the small supervisory staff this procedure is probably necessary in order to secure the required measure of uniformity. With a supervisory staff as outlined above this would no longer be necessary as it would be possible then to standardize the work of the schools instead of attempting to standardize the work of the pupils. Uniformity in the sense of identity or partial identity is not necessary. All that is absolutely necessary is equivalence of work. The ability to go from grade to grade does not depend so much on the possession of a uniform body of facts as on the development of the ability to organize knowledge and to adapt one's self to new conditions. It is quite conceivable that varying emphasis should be placed on the different parts of the course of study in various parts of the City of Akron. It is well understood that education must begin "where children are." As a matter of fact, this varies according to the children's environment and therefore the course of study might be expected to vary accord-

ingly. There is no doubt that equivalent power in reading, writing and figuring should be developed in all parts of the city, but even this might be reached through different roads, and as far as other subjects are concerned, especially those which are not based on logical development, a great amount of variation might be allowed. This could be provided for if there were an adequate supervising staff practically living in the schools and standardizing the equality of the work rather than its actual content. Tests could be given from time to time, not of the nature of formal examinations, for the purpose of measuring the teacher's work rather than that of the pupils. In fact such tests are given at present either by the Superintendent or by the principals at his request. The children know nothing of the origin of the tests which are quite as much a gauge of the teachers' as of the pupils' work. In my judgment, this is the only kind of examination paper which should be set or outlined by the Superintendent. If teachers and principals were made absolutely responsible for the value of the human product sent on to the High Schools, it would tend to increase their feeling of responsibility and would give an added dignity to the important position of the principal of an elementary school.

It appears that in the High Schools the terminal examinations are, for the most part, set by the Superintendent, although occasionally teachers may be called on to assist. The principals and teachers of the High Schools should be of such ability and training that this duty could safely be entrusted to them, the Superintendent simply keeping thoroughly informed as to the nature of the examinations set and particularly the nature of the class-room work upon which the examinations are based. The ability to make out a good examination paper is one mark of a teacher who has a good grasp of her subject. The true supervisory function here is that of helping teachers who lack this ability to find themselves. It can hardly be doubted that such an increase in the autonomy of the High Schools would operate to improve their efficiency through increasing initiative and responsibility on the part of teachers and principals, and it is equally clear that the time of the Superintendent would be set free from a routine task for the performance of higher educational functions.

2. Percentage of Promotions.

Below is a table setting forth the percentage of children regularly promoted, promoted on trial, promoted during the term, demoted, and failed, for the year ending June, 1916. The percentage of children demoted during the term is included in the percentage of children failed and, therefore, should not be added to make 100%.

School	Per Cent Regularly Promoted	Per Cent on Trial	Per Cent Promoted Through the Term	Per Cent Demoted	Per Cent Failed
1.	91.6	1.3	1.6	0.18	5.5
2.	83.7	0.0	8.0	0.69	8.3
3.	88.1	2.0	2.2	0.25	7.7
4.	83.6	2.4	8.6	0.0	5.4
5.	74.9	0.2	13.7	1.08	11.2
6.	84.8	1.1	4.9	0.22	9.2
7.*	81.9	4.0	8.4	0.0	5.7
8.	84.6	0.2	8.0	0.0	7.2
9.*	84.8	1.0	6.1	0.55	8.1
10.	86.3	1.2	5.9	0.0	6.6
11.	87.3	0.0	3.5	0.1	9.2
12.	86.8	0.3	5.4	0.16	7.5
13.	88.9	0.0	4.5	0.53	6.6
14.	84.0	4.4	4.4	0.0	7.2
15.	87.0	0.0	4.3	0.56	8.7
16.	91.7	0.0	2.2	0.0	6.1
17.	93.0	0.3	2.7	0.49	4.0
18.	81.2	1.3	9.5	0.74	8.0
19.	91.2	1.4	2.5	0.29	4.9

* These figures are for January, 1916.

From these figures, compiled from the records of the Department, it will be seen that the percentage of promotion in all schools—including those promoted on trial and those promoted throughout the term—is uniformly high, varying between 89% and 96%.

In order to get an idea of the amount and causes of non-promotion for the different grades in the various elementary schools the Superintendent was asked to request teachers and principals to fill out two blank forms of inquiry, giving the following information:

FORM I.

Terminal Promotion, Promotion Through the Term and Non-Promotion.

Name of School..... Date.....

Columnar Headings:

Grade.

Number enrolled during semester.
Number who left for other schools or school systems.
Number who left to go to work.
Number of Promotions during semester.
Number of Demotions during semester.
Enrollment at end of Semester.
Number Promoted.
Number not Promoted.
Number not Promoted on account of:
- Poor health.
- Poor preparation.
- Lack of interest on part of parents.
- Lack of interest on part of child.
- Irregular attendance, other than from ill health.
- Late entrance in semester.
- Coming from other schools.
- Too large class.
- Feebleminded.
- Mental slowness.

FORM II.

Parentage and Racial Origin.

Name of School..... Date.....

Columnar Headings:

Grade.

Promoted through the Term:
- Number of foreign birth.
- Number of American birth but foreign parentage.
- Number of American birth and parentage.

Promoted:
- Number of foreign birth.
- Number of American birth but foreign parentage.
- Number of American birth and parentage.

Not Promoted:
- Number of foreign birth.
- Number of American birth but foreign parentage.
- Number of American birth and parentage.

The result of Form I appears in Tables XXV-A and XXV-B which follow.

It will be noted that the percentage of non-promotion varies throughout the grades from 3.9% to 12.5%, while the amount of non-promotion among the schools varies from 4.9% to 13.7%. With the exception of two half grades, the percentage of non-promotion throughout the grades does not exceed 8.7%, and among the individual elementary schools the rate does not exceed 8.8% except in six instances. In a city with so heterogeneous a population this rate speaks well for the quality of the supervision and the care with which teachers are selected and assigned.

TABLE XXV-A.

CAUSES OF NON-PROMOTION—By Grades

GRADES	Per Cent Promoted	Per Cent Not Promoted	Per Cent Promoted During Term	Per cent due to: Poor Health	Poor Preparation	Lack of Parent Interest	Lack of Child Interest	Irregular Attendance	Late Entrance	Coming from Other Schools	Too large Class	Feeble-mindedness	Mental Slowness	Immature	Doubled and Failed	Cause Unknown
1-B	87.5	12.5	2.5	22.0	1.4	1.8	3.2	5.0	7.0	4.5	0.5	5.5	46.3	0.5	0.0	2.3
1-A	87.8	12.2	2.7	21.2	3.1	3.1	7.6	4.5	0.7	1.5	0.0	9.1	45.4	0.7	0.0	3.1
2-B	91.3	8.7	4.3	18.9	11.2	4.3	6.1	3.4	0.0	4.3	0.9	9.5	41.4	0.0	0.0	0.0
2-A	94.9	5.1	1.7	24.5	5.6	0.0	2.0	5.6	0.0	17.0	0.0	2.0	43.3	0.0	0.0	0.0
3-B	93.7	6.3	4.8	21.0	7.4	1.2	12.3	3.7	6.2	7.4	0.0	5.0	34.6	0.0	0.0	1.2
3-A	93.3	6.7	1.8	8.1	2.7	4.1	9.4	4.1	2.7	12.2	0.0	2.7	47.3	0.0	0.0	6.7
4-B	93.6	6.4	3.2	25.2	8.8	6.6	7.7	2.2	3.3	9.9	1.1	3.3	30.8	0.0	0.0	1.1
4-A	94.1	5.9	3.7	20.4	6.1	4.1	26.6	6.1	0.0	2.0	4.1	2.0	28.6	0.0	0.0	0.0
5-B	92.9	7.1	3.1	14.3	6.4	2.6	9.1	5.2	4.0	15.5	0.0	1.3	36.3	0.0	4.0	1.3
5-A	94.4	5.6	3.0	17.8	2.2	0.0	13.4	6.7	2.2	4.4	0.0	0.0	48.9	0.0	0.0	4.4
6-B	94.8	5.2	3.5	27.0	10.4	2.1	14.6	4.2	2.1	14.6	0.0	4.2	20.8	0.0	0.0	0.0
6-A	93.4	6.6	2.9	17.0	2.1	6.4	17.0	4.3	0.0	14.9	0.0	0.0	36.2	0.0	0.0	2.1
7-B	93.7	6.3	0.8	7.8	2.0	5.9	17.6	5.9	7.8	19.6	2.0	0.0	27.4	0.0	0.0	4.0
7-A	92.1	7.9	0.8	21.6	5.4	5.4	8.1	2.7	0.0	19.0	0.0	0.0	32.4	0.0	0.0	5.4
8-B	96.0	4.0	2.2	20.8	4.2	0.0	8.3	4.2	12.5	25.0	0.0	0.0	25.0	0.0	0.0	0.0
8-A	96.1	3.9	0.3	26.7	13.3	0.0	6.7	0.0	6.7	20.0	0.0	0.0	26.6	0.0	0.0	0.0
	92.5	7.5	2.8	19.7	5.2	3.1	9.1	4.4	3.0	9.1	0.5	4.4	38.9	0.2	0.3	2.1

TABLE XXV-B.

CAUSES OF NON-PROMOTION—By Schools

SCHOOLS	Per Cent Promoted	Per Cent Not Promoted	Per Cent Promoted During Term	Per cent due to: Poor Health	Poor Preparation	Lack of Parent Interest	Lack of Child Interest	Irregular Attendance	Late Entrance	Coming from Other Schools	Too large Class	Feeble-mindedness	Mental Slowness	Immature	Doubled and Failed	Cause Unknown
1.	93.9	6.1	0.74	15.2	6.1	6.1	24.3	3.0	0.0	3.0	0.0	9.0	33.3	0.0	0.0	0.0
2.	92.2	7.8	6.4	16.2	2.7	0.0	10.8	0.0	0.0	16.2	0.0	0.0	43.3	5.4	0.0	5.4
3.	90.4	9.6	7.8	6.3	12.5	0.0	0.0	0.0	0.0	12.5	6.2	0.0	37.5	0.0	18.7	6.3
4.	92.9	7.1	2.1	15.1	1.9	1.9	1.9	5.7	1.9	3.8	0.0	7.5	35.8	0.0	0.0	24.5
5.	92.4	7.6	1.8	40.0	8.0	0.0	8.0	4.0	4.0	0.0	0.0	0.0	32.0	0.0	0.0	4.0
6.	93.4	6.6	3.6	9.7	6.45	6.45	9.7	3.2	3.2	6.45	0.0	9.7	45.15	0.0	0.0	0.0
7.	94.5	5.5	5.5	26.5	6.0	2.9	17.6	0.0	2.9	17.6	0.0	2.9	23.6	0.0	0.0	0.0
8.	86.3	13.7	16.3	23.8	23.8	0.0	0.0	4.8	0.0	19.0	0.0	0.0	19.0	0.0	0.0	9.6
9.	89.5	10.5	3.0	39.4	3.5	1.8	1.8	3.5	1.8	12.5	0.0	0.0	35.7	0.0	0.0	0.0
10.	92.0	8.0	10.4	6.3	31.2	6.2	0.0	12.5	0.0	6.3	0.0	12.5	25.0	0.0	0.0	0.0
11.	89.9	10.1	3.8	16.0	4.0	0.0	8.0	0.0	6.0	0.0	0.0	6.0	60.0	0.0	0.0	0.0
12.	92.3	7.7	6.3	22.8	0.0	0.0	11.4	2.9	14.2	5.8	0.0	2.9	40.0	0.0	0.0	0.0
13.	94.6	5.4	3.3	22.9	6.2	0.0	14.6	6.3	2.1	12.5	0.0	6.2	29.2	0.0	0.0	0.0
14.	91.2	8.8	1.2	18.9	5.4	8.1	18.9	2.7	2.7	27.0	0.0	2.7	13.6	0.0	0.0	0.0
15.	92.4	7.6	1.8	19.6	8.7	4.3	0.0	6.5	6.5	19.6	2.2	2.2	30.4	0.0	0.0	0.0
16.	92.1	7.9	0.8	16.5	3.1	4.1	17.6	5.1	5.1	6.2	3.1	1.0	38.2	0.0	0.0	0.0
17.	93.5	6.5	1.5	19.6	3.5	5.4	0.0	16.1	0.0	14.3	0.0	8.9	32.2	0.0	0.0	0.0
18.	92.0	8.0	0.0	22.4	6.2	2.0	10.2	2.0	0.0	8.2	2.0	0.0	47.0	0.0	0.0	0.0
19.	95.1	4.9	4.6	19.5	0.0	5.5	5.5	8.4	11.1	5.5	0.0	0.0	44.5	0.0	0.0	0.0
20.	91.0	9.0	1.1	16.2	4.3	7.7	7.7	0.9	0.0	5.1	0.0	6.8	51.3	0.0	0.0	0.0
21.	90.9	9.1	2.9	12.2	0.0	4.1	10.2	0.0	4.1	2.0	0.0	6.2	61.2	0.0	0.0	0.0
22.	94.9	5.1	3.9	12.8	0.0	0.0	7.7	2.6	5.1	5.1	0.0	2.6	64.1	0.0	0.0	0.0
23.	91.5	8.5	2.6	27.2	5.5	0.0	7.6	6.5	2.2	7.6	0.0	7.6	32.6	0.0	0.0	3.2
24.	93.2	6.8	3.2	17.0	8.6	2.1	14.8	8.6	8.6	2.1	0.0	2.1	34.0	0.0	0.0	2.1
25.	94.4	5.6	0.0	28.6	0.0	0.0	0.0	14.2	28.6	0.0	0.0	28.6	0.0	0.0	0.0	0.0
26.	93.1	6.9	0.8	22.6	3.2	3.2	9.7	6.5	3.2	25.8	0.0	3.2	19.4	0.0	0.0	3.2
	92.5	7.5	2.8	19.7	5.2	3.1	9.1	4.4	3.0	9.1	0.5	4.4	38.9	0.2	0.3	2.1

As in the case of any such inquiry, absolute accuracy cannot be attributed to the judgments of causes of non-promotion. The very suggesting of possible causes in the use of headings tends to give an undue weight to such factors in proportion to others not distinctly mentioned. Again, such possible causes as poor instruction, lack of sufficient individual attention, unsuitable course of study, are rarely assigned by teachers as actual causes even if definitely mentioned in an inquiry. At the same time the results are instructive and if such a census is taken every term the result cannot fail to be good. As a matter of fact, similar information has been obtained every year in Akron with regard to over-ageness in children, one of the chief causes of which is, of course, failure of regular promotion.

The results of Form II were somewhat negative. In the system as a whole the fact of foreign birth seemed to have little relation to success in promotion. In the first primary grades the foreign children seemed to be under considerable handicap but as the middle grades were reached evidence of this disappeared, while in two of the last three grades the rate of promotion among pupils of foreign parentage was actually higher than among children of American parentage. This is probably due to a natural selective process.

The number of promotions during the term is a noteworthy feature of the Akron schools. The use of the words "double promotion" and "skipping" has given a very wrong impression to many people who as a result have condemned the practice as injurious. It is natural that where education is looked upon as a series of jumps ahead it would not be regarded as wise to have a child jump twice as far as was expected in any one period, either because it would involve "skipping" some work or undue nervous pressure on the child. As a matter of fact, there is no reason why each child should not follow his natural gait in school work, with due regard to age, health and natural interest, as in his out of school activities. There is no reason, other than a mechanical one, why all children should reach a certain point in the course of study at a certain time any more than that all adults in Akron should consume the same time in walking a mile. Only in an adult army is the rate and mode of progress of one necessarily conformed to the whole. In fact, it is distinctly injurious to try to get equal attainment in an equal period. Either the slow are over-stimulated or the rapid discouraged and taught habits of indolence and indifference, or both. That promotions in Akron are too fluid is not a valid criticism, but rather that they are not as fluid as they might be with fewer children per teacher and more supervision. Insofar as children are "jumped" from one grade to another without covering essential material in the course, and insofar as the physique and health of children is not considered in permitting or encouraging promotions during the term, the results may be bad. Particular inquiry was made on this point. In one school the following methods are used to insure that no hiatus shall occur in the courses of either slow or rapid-progress children:

a—The principal for several periods each day teaches small special classes of selected pupils who need individual attention, either because they are slow or unusually quick.

b—Where two adjacent divisions are under the same teacher, weak pupils in the higher division may be required to do the work of the lower division in certain subjects, in addition to their regular work, and rapid pupils in the lower division may be allowed to take the class-work of both divisions in certain basal subjects.

c—Where adjacent divisions are under different teachers, pupils are allowed to pass between classes for double work in different subjects.

Where this system is faithfully applied nothing but good can result if full use is made of the medical inspection staff in matters of health. In fact the method should be given the widest use to secure, as far as is possible and desirable, promotion by subject. The observer in the course of visits, without any special inquiry, encountered evidences that the first of the devices mentioned above was in full operation. Later he discovered that it was a regular part of the work of each elementary principal. The question is not here raised whether the principals in the large schools should be assigned to this work or not.

One Akron High School thus describes its method of securing a natural rate of promotion:

> "We make a special effort to keep in close touch with the homes by means of phone, personal calls, letters and interviews with parents who visit the school. We study our individual pupils to find out how best to adapt our instruction to their needs."

> "We permit our pupils to advance as rapidly as they wish to do. Pupils who are capable can graduate here in 3½ years, and sometimes in 3 years. Other pupils physically and mentally unable to carry full work are permitted to take a longer time to complete the course."

VII. RETARDATION AND OVER-AGE IN AKRON.

No two educational terms are so commonly confused and misunderstood as retardation and over-age. Their meanings, however, are simple. Retardation is simply progress through the grades at a rate slower than what is regarded as the normal rate. Over-age is simply being older than the normal age for the grade in which a pupil finds himself. Over-age may be caused either by slow-progress (retardation) after entering school or by late entrance on the school course. Over-age and retardation overlap to some extent. The school is not responsible for the over-age of children unless it is caused by retardation, and not then if the causes of retardation are outside of school control. From the standpoint of the school, retardation is the impor-

tant problem. Its amount, incidence, and causes must be carefully studied in order to know how to combat it. For many years the City of Akron has made a continuous study of over-age and its causes. A complete study of retardation was impossible owing to the changing membership of the schools. It was thought worth while, however, for the purpose of this study to make an analysis of the retardation and over-age facts for those pupils whose records are complete, i. e., for the most part, those pupils whose whole school life has been in Akron.

The standards of normal age and progress used in the study were as follows:

Grade	Normal Age of Entering the Grade	Normal Length of School Life, in years, before Entering the Grade
I-B	6	0
I-A	6½	½
II-B	7	1
II-A	7½	1½
III-B	8	2
III-A	8½	2½
IV-B	9	3
IV-A	9½	3½
V-B	10	4
V-A	10½	4½
VI-B	11	5
VI-A	11½	5½
VII-B	12	6
VII-A	12½	6½
VIII-B	13	7
VIII-A	13½	7½

The children of each elementary school and of each grade in the elementary schools as a whole were divided by the study into nine groups, as follows:

1. Young for their grades and rapid in progress;
2. Of normal age and rapid in progress;
3. Old for their grades, but rapid in progress;
4. Normal in progress and young for their grades;
5. Normal both in age and progress;
6. Normal in progress but over-age;
7. Slow in progress but young for their grades;
8. Slow in progress but of normal age;
9. Slow in progress and old for their grades.

Table XXVI which follows shows the main results of the study.

TABLE XXVI.

SUMMARY OF AMOUNT OF OVER-AGE AND RETARDATION IN THE ELEMENTARY SCHOOLS

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Grand Total	Per Cent.
Pupils making rapid progress	1,065	174	247	1,486	16.3%
Pupils making normal progress	1,689	1,853	1,065	4,607	50.5
Pupils making slow progress	199	716	2,114	3,029	33.2
Total	2,953	2,743	3,426	9,122	100 %
Per Cent	32.4%	30%	37.6%	100%	

Details of Amount of Over-age and Retardation in the Elementary Schools

GRADE I-B

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	.....	.....	.....	.....	.....
Pupils making normal progress	192	362	127	681	72%
Pupils making slow progress	9	79	177	265	28
Total	201	441	304	946	100%
Per Cent	21.2%	46.7%	32.1%	100%	

GRADE I-A

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	1	3	19	23	1.7%
Pupils making normal progress	390	406	238	1,034	21.2
Pupils making slow progress	30	75	180	285	77.1
Total	421	484	437	1,342	100 %
Per Cent	31.2%	36.1%	32.7%	100%	

GRADE II-B

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	15	6	6	27	3.4%
Pupils making normal progress	228	172	109	509	61.8
Pupils making slow progress	17	80	188	285	34.8
Total	260	258	303	821	100 %
Per Cent	31.7%	31.5%	36.8%	100%	

GRADE II-A

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	59	7	17	83	10.3%
Pupils making normal progress	181	190	117	488	60.4
Pupils making slow progress	18	56	163	237	29.3
Total	258	253	297	808	100 %
Per Cent	31.9%	31.3%	36.8%	100%	

TABLE XXVI—Continued.

Details of Amount of Over-age and Retardation in the Elementary Schools

GRADE III-B

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	105	16	19	140	19.8%
Pupils making normal progress	117	141	49	307	43.5
Pupils making slow progress	9	84	166	259	36.7
Total	231	241	234	706	100 %
Per Cent	32.7%	34.2%	33.1%	100%	

GRADE III-A

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	61	7	10	78	11.8%
Pupils making normal progress	92	128	70	290	45.4
Pupils making slow progress	26	63	204	293	42.8
Total	179	198	284	661	100 %
Per Cent	27%	29.9%	43.1%	100%	

GRADE IV-B

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	118	11	23	152	22.3%
Pupils making normal progress	83	80	54	217	31.8
Pupils making slow progress	18	64	232	314	45.9
Total	219	155	309	683	100 %
Per Cent	32.1%	22.7%	45.2%	100%	

GRADE IV-A

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	71	16	29	116	18.8%
Pupils making normal progress	88	94	80	262	43.0
Pupils making slow progress	17	51	166	234	38.2
Total	176	161	275	612	100 %
Per Cent	28.7%	26.4%	44.9%	100%	

GRADE V-B

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	72	13	15	100	24.3%
Pupils making normal progress	50	54	28	132	32.0
Pupils making slow progress	12	42	126	180	43.7
Total	134	109	169	412	100 %
Per Cent	33.4%	25.6%	41%	100%	

TABLE XXVI—Continued.

Details of Amount of Over-age and Retardation in the Elementary Schools

GRADE V-A

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	87	14	25	126	25.5%
Pupils making normal progress	80	56	50	186	37.6
Pupils making slow progress	13	29	141	183	36.9
Total	180	99	216	495	100 %
Per Cent	36.3%	20%	43.7%	100%	

GRADE VI-B

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	112	14	20	146	35.6%
Pupils making normal progress	45	45	29	119	29.0
Pupils making slow progress	5	41	99	145	35.4
Total	162	100	148	410	100 %
Per Cent	39.5%	24.4%	36.1%	100%	

GRADE VI-A

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	86	9	22	117	34.1%
Pupils making normal progress	44	37	28	109	31.8
Pupils making slow progress	8	18	91	117	34.1
Total	138	64	141	343	100 %
Per Cent	40.2%	18.6%	41.2%	100%	

GRADE VII-B

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	73	17	17	107	35.6%
Pupils making normal progress	24	34	29	87	29.1
Pupils making slow progress	6	24	75	105	35.3
Total	103	75	121	299	100 %
Per Cent	34.2%	25.2%	40.6%	100%	

GRADE VII-A

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	65	12	5	82	38.5%
Pupils making normal progress	35	22	28	85	39.9
Pupils making slow progress	6	3	37	46	21.6
Total	106	37	70	213	100 %
Per Cent	49.7%	17.4%	32.9%	100%	

TABLE XXVI—Continued

Details of Amount of Over-age and Retardation in the Elementary Schools

GRADE VIII-B

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	65	18	10	93	65.9%
Pupils making normal progress	3	8	10	21	14.9
Pupils making slow progress	2	3	22	27	19.2
Total	70	29	42	141	100 %
Per Cent	49.6%	20.5%	29.9%	100%	

GRADE VIII-A

	Under-age Pupils	Pupils of Normal Age	Over-age Pupils	Total	Per Cent.
Pupils making rapid progress	76	11	10	97	41.8%
Pupils making normal progress	37	24	19	80	34.5
Pupils making slow progress	4	4	47	55	23.7
Total	117	39	76	232	100 %
Per Cent	50.4%	16.9%	32.7%	100%	

The following points, among others, were established by the study of over-age and retardation:

a—For 44% of the children in the Akron schools there are not complete records. **These represent for the most part children who started school elsewhere;**

b—33.2% of the children—for whom there were complete records, and who presumably for the most part started school in Akron —have made slow progress; 50.5% normal progress; and 16.3% rapid progress;

c—23% of the children are both slow in progress and too old for their grades;

d—106 classes in Akron contain pupils, the variations in whose progress covers as much as 6 terms, or 3 school years;

e—287 classes also contain pupils whose ages vary as much as 3 years.

These conditions are not unusual in American cities. In fact, in comparison with most cities Akron stands well. It would be possible here to set forth comparative lists, but the standards used are so varied and the local conditions are so different that the information would shed little light on Akron's problems. In Akron itself the local conditions are in such a state of flux that an increase in the percentage of retardation would not necessarily indicate a decrease in efficiency, but only perhaps an increase in difficulties. For example, the tremendous increase in enrollment from outside points and particularly the increase in the foreign elements of the population, according to the records of

the schools, has apparently cut down the relative number of promotions through the year for the last decade. It is interesting to note that during the same period the percentage of regular promotions has not decreased. This is due to the definite adoption of a policy which concentrated effort on securing at least a normal rate of promotion. With smaller classes and more intimate supervision the proportion of rapid promotion might have been kept up with equal success.

There are at least four effective methods of dealing with retardation:

1. Small classes.
2. Fine classification of children according to ability to progress rapidly.
3. Frequent regular promotion periods.
4. Promotion by subjects where possible.

In Akron the classes are not abnormally large when compared with other growing cities, and the chief benefit of small classes is obtained by dividing every teacher's class into at least two divisions so that the teaching unit is rarely more than 20, except in the case of subjects which lend themselves to treatment in large groups. A glance over the excerpts from field notes in Part C. will make this apparent. Tables XXVII and XXVIII which follow show the facts with regard to the distribution of classes of various sizes. It will be noticed that the number of classes with a membership of 45 or over seems again to be on the increase. This constitutes a danger signal. It should be borne in mind, however, that each of these classes has at least two divisions.

TABLE XXVII

NUMBER OF CLASSES OF DIFFERENT SIZES—BY GRADES

April 14, 1914 and December 14, 1916.

Grade	20-25		26-30		31-35		36-40		41-45		46-50		51-55		56-60		61-65		66-80		81-90		91-100		Over 100		Total	
	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16	'14	'16
K.	....	....	....	....	....	....	2	2	1	....	2	1	5	3	2	2	2	1	2	2	1	5	....	....	1	6	18	22
1-B	1	....	....	1	9	13	9	16	2	8	3	2	....	1	..	..	..	.	....	....	....	....	....	....	....	....	24	41
1-A	1	2	2	....	4	2	10	7	10	13	1	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	28	29
2-B	....	....	1	1	2	9	6	13	9	8	2	6	3	....	..	....	....	....	....	....	....	....	....	....	....	....	23	37
2-A	....	....	1	1	3	2	3	10	6	5	2	8	....	....	..	....	..	....	....	....	....	....	....	....	....	....	15	26
3-B	....	....	....	....	....	....	4	9	6	13	5	8	2	2	..	....	....	....	....	....	....	....	....	....	....	....	17	32
3-A	....	....	....	1	....	4	1	3	4	5	7	10	5	3	....	....	....	....	...	....	....	....	....	....	....	....	17	26
4-B	....	...	....	....	....	7	3	7	9	7	2	2	5	4	...	1	..	....	....	....	....	....	....	....	....	....	19	28
4-A	....	1	....	1	1	2	4	6	7	6	1	1	1	2	....	....	....	....	....	....	....	....	....	....	....	....	14	19
5-B	....	1	....	....	....	2	3	9	6	7	5	10	2	....	...	2	....	...	....	....	....	....	....	....	....	....	16	31
5-A	....	..	....	1	1	1	4	6	3	3	6	4	1	1	....	...	...	1	....	....	....	....	....	....	....	....	15	17
6-B	....	....	...	....	....	1	2	6	8	10	3	6	2	1	.	....	...	....	...	....	....	....	....	....	....	....	15	24
6-A	....	....	....	1	2	3	3	5	3	5	5	4	1	1	.	....	..	....	....	....	....	....	....	....	....	....	14	19
7-B	....	. ..	....	....	....	3	5	5	6	3	2	6	3	...	. .	7	....	....	....	....	....	....	....	....	....	....	16	24
7-A	....	....	....	....	2	5	3	2	6	7	1	1	....	....	. .	....	....	....	....	....	....	....	....	....	....	....	12	15
8-B	....	....	.. .	....	1	3	5	6	1	5	....	1	....	...	....	. .		1	....	....	....	....	....	....	....	....	7	16
8-A	....	....	....	....	3	2	4	3	2	5	2	1	....	1	...	. ..	..	....	. ..	....	....	....	....	....	....	....	11	12
	2	4	4	7	28	59	71	115	89	110	49	76	30	19	2	12	2	3	2	2	1	5	....	....	1	6	281	418

TABLE XXVIII

DISTRIBUTION OF CLASSES ACCORDING TO NUMBER OF PUPILS PER TEACHER—April 20th, 1917.

Name of School	Number of Classes with Enrollment for the Month of April							
	Under 25	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 or Over
Allen	0	0	1	8	4	2	1	0
Bowen	0	0	5	4	4	1	0	1
Bryan	0	0	0	8	5	6	0	1
Crosby	0	0	2	7	0	3	1	0
Frank H. Mason	0	0	1	1	10	4	0	2
Fraunfelter	0	0	2	3	4	2	2	1
Grace	0	0	0	4	0	1	3	4
Henry	0	0	4	4	2	2	0	1
Howe	0	1	3	6	9	6	0	0
Jennings	0	0	0	1	4	2	3	1
Kent	0	0	0	2	9	1	4	0
Lane	0	0	1	1	5	13	6	4
Leggett	0	0	2	3	4	6	4	5
Lincoln	0	0	1	3	7	4	2	0
Miller	0	0	0	3	12	13	4	2
Perkins Normal	0	1	2	3	4	4	1	0
Portage Path	0	1	4	9	2	5	0	1
Robinson	0	0	2	7	11	7	4	1
S. Findley	0	0	1	12	3	1	0	1
Spicer	0	0	3	7	2	4	2	0
Caldwell	0	0	1	1	2	5	0	0
Central High	0	0	4	4	3	3	3	1
South High	0	1	6	13	4	0	0	0
West High	0	0	8	10	10	0	0	0
Brittain	0	0	1	0	2	1	0	0
Goodyear	0	0	0	0	2	1	1	0
Forest Hill	0	0	1	3	0	1	0	0
	0	4	55	127	124	98	41	26

Practically all of the extremely large classes are in the kindergarten. In such cases two teachers are provided for each class, each division meeting, if necessary, at different sessions. The percentage of classes with a membership of more than 40 apparently has not increased in three years even including the oversize kindergarten classes.

The classification of pupils in Akron is also up to the average. Comparatively few over-size children were observed in most of the schools visited. It is felt, however, that more might be done in securing a nearer approach to homogeneity in the divisions by considering carefully the assignment of each individual child from the standpoint of past progress and age. No matter how homogeneous a class may be at the beginning of a term, individual differences begin to develop immediately so that there need be no fear that the effects of competition will be eliminated by fine classification. As a matter of fact there can be no rivalry, but only discouragement, when children of two greatly different abilities are included in the same division of a class. In one or two classes observed, the classification was such as to distribute the children evenly between the divisions so that they were about alike in the average ability of their membership. The analogy of the race track is of value here. The divisions should be regarded as fluid, as far as possible, each child beginning each term where he

left off the term before so that the full advantage of classification may be obtained. In so far as divisions remain permanent in constitution, the same principle should obtain. Many examples of this policy were observed in actual practice in Akron, the membership of some classes being in flux to such an extent that almost the total memberships were changed within one school year.

There are two regular promotion periods during the Akron school year, corresponding to the half-year grades set up in the Course of Study. This ensures that a non-promoted child will not have to do a whole year's work over again. It is advisable, of course, that no child should have to repeat any work he knows well. With our mass education, however, this is not always possible, although in Akron if the methods referred to on page 189 be used to the full extent or increased where necessary, there is no reason why non-promoted children could not be allowed, in very many cases, to continue the work they were fitted to do in more advanced divisions or classes. For the sake of the child's ambition and self-respect and for the sake of society this ideal should be held firmly in view as no doubt it is, in many cases in Akron. Except in the first grades and in the basal subjects, failure in any one subject certainly should not involve the repetition of the full work of a school semester.

The following record of 79 pupils starting in I-B illustrates both the extent of the present fluidity of promotion and the migratory nature of the population of Akron:

ENROLLMENT AND LEAVING

	September 1915	January 1916	September 1916	January 1917
Grade I-B	79	9	----	----
Grade I-A	----	51	7	----
Grade II-B	----	1	32	6
Grade II-A	----	----	19	22
Grade III-B	----	----	1	9
Grade III-A	----	----	----	8
Grade IV-B	----	----	----	----
Grade IV-A	----	----	----	1
Left the Building	----	18	2	13

That is, out of 79 pupils starting out in I-B., at the end of a year and a half, 1 was in IV-A; 8 in III-A; 9 in III-B; 22 in II-A; and 6 in II-B; and 33 had left the building.

The range of ages in the membership of a class is very important. The range in rate of progress is still more important. Both must be considered in classifying children within the same grades at the end of each semester. To secure the best results in co-operation and healthy rivalry the children of a class should be as near one another as possible in age and capacity to make progress. **Although Akron does not stand poorly in these regards, a great deal could be done to improve conditions.** Table XXIX which follows classifies the classes of each grade according to the range of rates of progress in their membership by half years. **The classification, however, is confined to those children only who began school in Akron. It does not include foreigners or others who began their school life elsewhere and for whose present status the schools of Akron are responsible.**

TABLE XXIX.

DIFFERENCES IN RATES OF PROGRESS, BY HALF YEARS, BETWEEN SLOWEST AND MOST RAPID PUPILS.

Years	None	½	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9
Grades	No. of Classes showing these differences in progress																		
1-B	8	13	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-A	3	13	14	12	4	2	2	0	0	1	0	0	0	0	0	0	0	0	0
2-B	2	4	5	8	10	3	0	0	0	0	1	0	0	0	0	0	0	0	0
2-A	3	2	11	9	8	2	3	1	0	0	0	0	0	0	0	0	0	0	0
3-B	0	0	7	5	9	5	5	0	0	0	0	0	0	0	0	0	0	0	0
3-A	0	3	5	2	8	6	3	2	3	1	1	0	0	0	0	0	0	0	0
4-B	0	0	4	5	10	5	4	1	6	0	0	0	0	0	0	0	0	0	0
4-A	3	2	4	5	6	7	6	4	1	2	0	0	0	0	0	0	0	0	0
5-B	0	0	0	3	5	6	6	2	0	2	0	0	1	0	0	0	0	0	0
5-A	1	0	2	2	4	11	7	5	2	0	1	0	0	0	0	0	0	0	0
6-B	1	0	3	1	7	8	5	3	0	0	1	0	0	0	0	0	0	0	0
6-A	2	1	1	4	13	2	1	0	3	0	1	0	1	0	0	0	0	0	0
7-B	1	0	4	4	4	3	4	1	0	2	0	0	0	0	0	0	0	0	0
7-A	2	1	8	4	3	1	0	1	1	0	1	0	0	0	0	0	0	0	0
8-B	1	4	1	2	4	0	1	0	1	0	0	0	0	0	0	0	0	0	0
8-A	3	2	1	1	5	0	3	2	1	0	0	0	0	0	0	0	0	0	0
TOTAL	30	45	79	70	101	61	50	22	18	8	6	0	2	0	0	0	0	0	0

In Grade I-B, for example, there were 8 classes whose memberships were on a par as to progress, in 13 classes there was only half a year between the fastest and the slowest pupils, and in only one class was there a difference of as much as 2 years between the slowest and the most rapid. It will be noticed that the range of ages increases up to VI-A and decreases again up to VIII-A. This is because the law holds boys in school until the age of 15 and girls to the age of 16. Backward children naturally drop out in most cases when they fill the requirements of the law. (See page 196 on dropping out.) Out of 492 classes for which statistics were obtained, 106 classes had children who started school in Akron who varied in rates of progress 3 years or more.

In Table XXX which follows is shown a similar grouping of classes according to range of ages between their oldest and youngest pupils. It will be noticed that out of 492 classes reported on 287 had ranges in age between the oldest and youngest pupil of 3 years or over, while 23 had ranges of 6 years or over. The range in ages is of course much greater than range in years. Children arrive at a proper age for going to school at different periods in their lives. For this the school is not responsible. Nevertheless great ranges in age constitute a great handicap to teachers under our present mode of organization. **In the larger schools no doubt much could be done by classifying pupils in the same grades so as to put similar age-progress groups under the same teachers.**

TABLE XXX

DIFFERENCES BY HALF YEARS BETWEEN AGES OF OLDEST AND YOUNGEST PUPILS.

Years	None	½	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9
Grades	No. of classes showing these differences in ages.																		
1-B	0	1	4	9	3	6	6	1	0	1	1	0	0	1	0	0	0	0	0
1-A	0	1	5	6	5	8	7	6	4	3	1	2	0	0	1	0	1	0	1
2-B	0	0	1	2	6	4	8	2	4	1	4	0	1	0	1	0	0	0	0
2-A	2	0	1	2	3	8	5	5	7	2	2	0	0	0	1	1	0	0	0
3-B	0	0	0	4	1	4	10	3	5	0	0	3	0	1	0	0	0	0	0
3-A	0	0	0	0	6	2	13	0	3	3	2	1	1	2	1	0	0	0	0
4-B	0	0	0	0	4	7	2	2	5	4	4	5	1	0	0	1	0	0	0
4-A	2	0	3	2	4	7	2	5	3	5	1	1	2	1	2	0	0	0	0
5-B	0	0	1	0	1	6	3	3	2	1	3	4	0	1	0	0	0	0	0
5-A	1	0	1	2	4	3	3	8	5	3	3	2	0	0	0	0	0	0	0
6-B	0	0	1	2	1	5	5	6	3	2	2	1	1	0	0	0	0	0	0
6-A	0	2	0	2	3	5	6	4	3	3	1	0	0	0	0	0	0	0	0
7-B	0	1	1	1	3	3	6	1	1	3	3	0	0	0	0	0	0	0	0
7-A	2	0	3	2	8	2	0	3	1	1	0	0	0	0	0	0	0	0	0
8-B	0	1	2	2	1	2	4	0	0	2	1	0	0	0	0	0	0	0	0
8-A	2	0	3	1	1	1	5	2	2	0	0	0	0	0	0	0	0	0	0
Total	9	6	26	37	54	73	85	51	48	34	28	19	6	6	6	2	1	0	1

It is recommended that age-grade tables similar to those given on pages 185-188 be made out for each class in Akron at the beginning and end of each semester as a guide to re-classification of pupils in the light of differences of age and progress. The name of each pupil must of course be entered on whatever age-grade form may be used.

VIII. ELIMINATION OF CHILDREN OR THEIR DROPPING OUT BEFORE COMPLETING THE ELEMENTARY SCHOOL COURSE.

During the first half of the present academic year, 103 children dropped out of school to go to work before completing the work of the elementary schools. These must all have been children over 15 or over 16, according as they were boys or girls. It is fair to assume that the elimination during the second half of the school year is, on the average, equal to that of the first half. The usual experience is that the number dropping out during the summer vacation is greater than either. Is it not probable, therefore, that between 300 and 400 children annually drop out of school before completing the course? From a comparative standpoint, this is a good record, but absolutely and individually it constitutes a serious loss. The question is not "How does Akron compare with other cities as to elimination?" but "How does Akron's record compare with her possible record?"

The following questions naturally arise here:

1—Did these children who dropped out all have the advantages of pre-vocational instruction, and manual training or domestic arts?

2—What proportion of them were forced out of school for financial reasons and what proportion could have been retained if the children and their parents had felt that remaining in school would have added to the children's efficiency?

3—How many of these are the schools now reaching, how, and with what results?

The error is sometimes made of regarding the membership of the different grades as a measure of dropping out. It is claimed, for instance, that if 2,000 children are found in Grade I and 500 in Grade VIII, that there has been an elimination of 75%. This is, of course, not true. Children die and thus decrease the numbers in the upper grades. Population increases and thus increases the size of the incoming classes.* The latter factor is not of so much weight as might be thought as all grades receive accessions from outside. The table below shows **approximately** the total membership for each grade and the approximate number of those starting in Akron schools. (Pupils whose school records were complete.)

*Since 1905, Akron's population has gone up from 52,357 to 135,000 (estimated).

Grade	Total Membership	No. who started in Akron
I-B	1,457	946
I-A	1,477	1,342
II-B	1,115	819
II-A	1,255	808
III-B	1,124	706
III-A	1,309	661
IV-B	1,132	683
IV-A	1,246	612
V-B	833	412
V-A	1,067	495
VI-B	790	410
VI-A	954	343
VII-B	704	299
VII-A	754	213
VIII-B	492	141
VIII-A	623	232
TOTAL	16,332	9,122

A study of these two columns will give a good idea of the amount of elimination if the following facts are kept sight of:

1—The death rate has decreased the membership in the upper classes;
2—Many children have come from other places to Akron;
3—Many Akron children have gone to other places;
4—The difference in enrollment between Grade I and Grade II is largely caused by the non-promotion of immature children.

It will be noted that there is a rapid drop in membership above IV-A, which cannot be accounted for without the element of elimination.

In this connection it is noteworthy that 865 children entered the system in 1905, that an unknown number have since entered the various grades at different places—probably many more than those who left for other schools—in the course, and that 300 graduated from the High Schools in 1917. Again, 1974 children—or twice as many as in 1905—entered school for the first time during 1916-1917, and 930 graduated from the elementary schools and 300 from the High Schools at the two promotion periods in 1917. Not all the disparity in these figures is due to increase in population or to death. Much is due to the maladjustment of the school system to community needs and to undesirable social and economic conditions.

Akron's record compares favorably with that of other communities in respect to elimination, but not with her own possibilities. Very careful check on eliminations is maintained by the Superintendent at present. Causes of elimination and other necessary data are recorded in every case. So far these records have not been used for statistical purposes as the city has no continuation schools and it was felt that the time necessary for annual statistical studies of retardation would not be warranted.

It is suggested that, in future, eliminations be made the subject of the same kind of thorough study that the Akron system has given to overage and its causes as a basis for the establishment of continuation schools and thoroughly organized night schools in Akron.

IX. THE EXCEPTIONAL CHILD.

In preceding chapters the methods of handling promotions during the term so as to insure that the children will not be handicapped by "holes" in their schooling has been fully described. The same means are used to assist the slow child and, in addition, a few minutes of the teacher's time each day is reserved for individual instruction. While this is available to both the very bright and the slow children, it is to be assumed that the slow child gets the greater care. A great injustice to the slow children has been done in many quarters by grouping them with the sub-normal. They are not sub-normal. In many cases they simply require different stimuli in order to arouse their latent abilities. In one of the upper grades a big boy was observed who seemed to be paying no attention to the teaching. As he looked intelligent the teacher was asked concerning his case. It appeared that he had been at a military school and while there had made good progress. He was greatly interested in wireless telegraphy and had even lectured on this topic. But there seemed to be nothing in the ordinary course of study which interested him. The school afforded him no opportunity for shop-work in wood or metals. In every system there are numbers of such boys. They are worth saving—often the most worth saving.

In another school a boy was reciting in formal grammar. He would soon be of working age and was about to leave school, yet he had nothing of the nature of pre-vocational training.

Besides these slow normal children, there are the actually sub-normal children who, at best, will be able to be self-supporting only under direction. Many such cases exist in all communities. In Akron the worst cases are not sent to school at all. The others attend but, in fairness to the other children, they receive no extra time from the teacher. It is possible that they do not do much harm in the regular classes. They certainly do no good and receive none. Should not all these children receive the instruction which they need under specially prepared teachers and in separate schools with the necessary special equipment? The principals of Akron are especially well-equipped for diagnosing feeble-mindedness, while the Board of Health provides for the schools a specialist in this work.

Eighteen buildings make special physical arrangements to supply rooms for individual instruction of "bright" and "slow" children. Thirteen have rooms set apart specifically for this purpose. Very effective work is carried on in these rooms. The following is a characteristic note on one: "Especially slow children, especially bright children, and children needing special help on account of absence through sickness, are here helped by the principal. Special individual teaching on the average, one hour per day."

X. MEDICAL INSPECTION AND OPEN-WINDOW ROOMS IN THE SCHOOLS.

Everywhere the examiner went he saw evidences of regular faithful work on the part of the Medical Inspection Force and of the most complete co-operation by the principals and teaching force. Several principals—as they well might—showed their pride in the medical equipment of their schools. All observed were fully up-to-date and in line with the latest developments. Twenty-four report stocks of medicines. At the Bowen School the writer had a good opportunity to observe the plant and equipment and the noiseless method with which pupils left their rooms for consultation with the nurses. He also spent some time with the open-air classes and ate lunch with the children. In equipment and management the open-air school leaves nothing to be desired as far as could be seen. Accompanying are some photographs of the pupils taken by request. It was a genuine pleasure to observe the children at lunch, at play and getting ready for work. Of the 83 children enrolled during the school year, 27 boys and 28 girls gained in weight. The gains were from 2 to 6 pounds per child. Only 2, boys, lost weight.

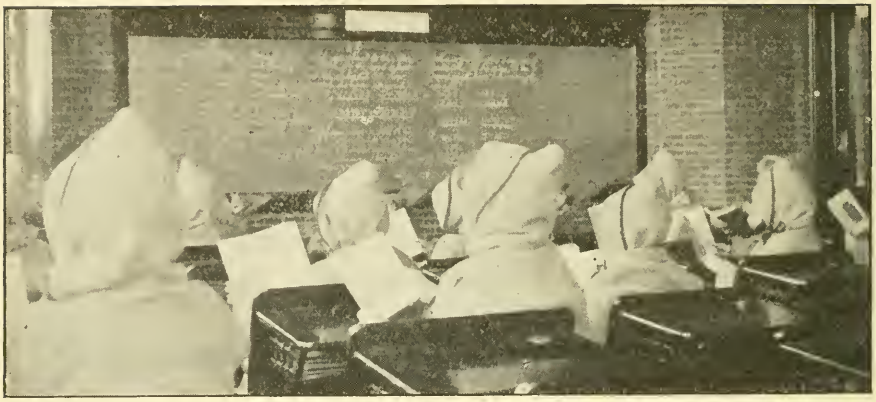
It is an interesting fact that several parents of children who automatically left the open-air school on reaching the sixth grade were disappointed, as they said that 1916-1917 was the first year in which the health of their children had permitted regular attendance.

That the work might well be extended is indicated by the fact that of the 30 new children who are to enter the school for the fall term, one is from the Fraunfelter, one from the Allen, and the remainder from the Bowen School where the open-air rooms are located.

Medical Inspection Room at the Bowen School.

Open-air Children of the Bowen School.

At Work.



It is hoped that the work may be extended to every large elementary school so that cases may be taken in hand all over the city at the very first sign that extra attention to health is needed.

The School Medical Inspection Division of the Board of Health employs 8 physicians, including one who spends all her time as special examiner of feeble-minded and retarded children. There are also 8 school nurses assigned regularly to schools, giving full time service during the school year. In addition, 6 nurses of other divisions do work bearing directly on the welfare of school children. Considering that the work in Akron is comparatively in its infancy, this compares

Resting.

Eating.

very favorably with such a city as Toronto, which employs about 40 nurses for an enrollment of from 65,000 to 70,000 children.

Akron has reason to be proud that she has taken the lead of so many large cities in co-ordinating the work of the Health Department and that of the School Medical Inspection service. There was every evidence of co-operation and none of friction.

The following statistics from the reports of the Medical Inspection Service give some idea of the extent and nature of the work undertaken. Table XXXI summarizes the work of the physicians for four months and Table XXXII of the 8 school nurses from October, 1916, to June, 1917.

Playing.

TABLE XXXI.

SUMMARY OF MONTHLY REPORTS
of
MEDICAL INSPECTION OF CHILDREN BY DISTRICT HEALTH PHYSICIANS

January–April, 1917.

Sheet 1—January

Physicians and Schools	Defects* 1	2	3	4	5	6	7	8	9	10	11	12	13	Total	Normal
Dr. Van Horn															
Findley	45	93	15	20	7	10	3	1	14	....	....	1	9	218	4
Caldwell	48	71	11	19	....	3	1	....	12	1	....	....	9	175	8
Jennings	39	50	6	27	1	....	3	1	2	....	....	....	18	147	16
Bryan	65	148	32	33	....	24	5	....	23	2	....	....	28	360	13
Forest Hill	43	34	1	5	1	3	3	1	5	1	....	....	10	107	4
TOTAL	240	396	65	104	9	40	15	3	56	4	....	1	74	1,007	45
Dr. Hogue															
Brittain	9	13	....	1	....	....	....	....	1	....	....	....	....	24	5
Goodyear	24	28	....	5	....	....	....	....	....	....	1	1	1	60	6
Kent	22	38	3	29	....	....	....	1	....	....	1	....	....	94	4
Mason	59	67	....	40	....	....	....	....	....	....	1	....	3	170	15
Robinson	43	53	....	39	1	....	....	....	....	....	....	1	4	141	6
TOTAL	157	199	3	114	1	....	....	1	1	....	3	2	8	489	36
Dr. Kent															
Lane	3	34	....	9	....	....	....	....	....	....	1	....	....	47	29
Triplett	....	2	....	....	....	....	....	....	....	....	....	....	....	2	2
Lincoln	6	31	1	10	....	....	....	....	....	....	....	....	1	49	24
Howe	11	41	1	12	....	....	....	....	....	....	2	....	....	67	27
Oak Grove	....	13	....	....	....	....	....	....	....	....	....	....	....	13	17
TOTAL	20	121	2	31	....	....	....	....	....	....	3	....	1	178	99

Dr. Dunderman															
South High	17	36	5	8	1	....	1	....	....	....	2	....	....	70	13
Allen	31	61	1	13	1	....	2	....	....	....	2	....	3	114	11
Leggett	72	116	1	26	....	1	4	....	....	....	1	....	2	223	9
St. Mary	5	22	....	2	1	....	....	....	....	....	1	....	....	31	4
Miller	76	147	6	36	....	1	....	....	....	....	3	....	2	271	19
TOTAL	201	382	13	85	3	2	7	....	....	....	9	....	7	709	56
Dr. Tuholske															
West High	7	42	....	10	3	2	1	....	....	....	1	....	28	94	....
Bowen	43	99	3	5	5	....	18	1	....	1	....	....	17	192	....
Portage Path	11	51	....	1	....	....	9	....	....	....	1	....	8	81	....
Crosby	37	91	....	10	2	3	15	....	....	....	....	1	7	166	....
TOTAL	98	283	3	26	10	5	43	1	....	1	2	1	60	533	....
Dr. Smith															
Central High	....	2	....	....	....	....	....	....	....	....	....	....	....	2	34
Fraunfelter	17	78	4	7	....	....	....	....	....	....	....	....	1	107	....
Germ. Luther	23	63	3	8	....	....	....	....	....	....	....	....	2	99	....
TOTAL	40	143	7	15	....	....	....	....	....	....	....	....	3	208	34
Dr. Griffin															
Henry	17	21	....	5	1	....	....	....	....	....	1	....	3	48	52
Spicer	8	24	....	7	....	....	....	....	1	....	....	....	1	41	64
St. Vincents	5	20	....	11	....	....	....	....	....	....	....	....	1	37	55
Perkins	11	24	1	4	1	....	....	....	....	....	....	....	1	42	50
Grace	10	27	....	4	1	....	1	....	....	....	....	....	....	43	77
TOTAL	51	116	1	31	3	....	1	....	1	....	1	....	6	211	298
GRAND TOTAL	807	1,640	94	406	26	47	66	5	58	5	18	4	159	3,335	568

* KEY TO DEFECTS

1. Adenoids and Tonsils
2. Teeth
3. Hearing
4. Eyes
5. Skin
6. Pediculosis
7. Glands
8. Nervous
9. Malnutrition
10. Orthopedic
11. Heart Disease
12. Mental Def.
13. Miscellaneous
14. Total
15. Normal

SUMMARY OF MONTHLY REPORTS
of
MEDICAL INSPECTION OF CHILDREN BY DISTRICT HEALTH PHYSICIANS

January–April, 1917.

Sheet 2—February

Physicians and Schools	Defects* 1	2	3	4	5	6	7	8	9	10	11	12	13	Total	Normal
Dr. Van Horn															
Findley	47	53	13	11	....	1	....	....	....	....	1	....	6	132	9
Caldwell	36	37	8	16	....	1	5	1	....	1	....	....	7	112	9
Jennings	36	49	16	21	2	....	8	1	....	....	1	....	13	147	14
Bryan	131	117	21	26	2	37	22	1	....	3	....	11	7	378	11
Forest Hill	6	7	1	1	....	....	....	....	....	....	....	....	....	15	....
TOTAL	256	263	59	75	4	39	35	3	....	4	2	11	33	784	43
Dr. Hogue															
Brittain	25	43	....	9	....	....	1	....	....	....	....	....	....	78	3
Goodyear	9	16	....	6	....	....	....	....	....	....	....	....	....	31	3
Kent	17	41	1	17	....	....	....	....	1	....	1	....	1	79	6
Mason	40	72	1	9	1	....	....	....	....	....	....	....	8	131	11
Robinson	52	90	1	14	....	....	....	....	3	....	1	....	5	166	19
TOTAL	143	262	3	55	1	....	1	....	4	....	2	....	14	485	42
Dr. Kent															
Lane	10	46	2	14	....	....	1	....	....	....	....	....	1	74	75
Triplett	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lincoln	11	26	....	5	....	....	....	....	....	....	....	....	....	42	36
Howe	6	33	2	15	....	....	1	....	....	1	....	....	2	60	63
Oak Grove	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
TOTAL	27	105	4	34	....	...	2	....	....	1	....	....	3	176	174

Dr. Dunderman															
South High	11	2	....	4	....	....	....	....	....	....	1	....	1	19	22
Allen	40	....	....	9	....	....	....	....	....	....	....	....	....	49	31
Leggett	33	25	....	14	....	....	....	....	....	....	2	....	....	74	21
St. Mary	25	8	....	5	....	....	2	....	....	....	1	....	1	42	26
Miller	63	15	2	....	....	1	13	....	....	....	....	....	....	94	29
TOTAL	172	50	2	32	....	1	15	....	....	....	4	....	2	278	129
Dr. Tuholske															
West High	19	37	4	21	....	3	3	....	....	....	4	....	45	136	112
Bowen	28	83	1	14	....	18	6	....	....	....	1	....	27	178	49
Portage Path	8	24	....	3	....	1	3	....	....	....	....	....	5	44	54
Crosby	28	71	3	5	1	4	13	....	....	....	....	....	8	133	38
TOTAL	83	215	8	43	1	26	25	....	....	....	5	....	85	491	253
Dr. Smith															
Central High	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Fraunfelter	107	102	15	5	....	1	....	....	....	....	....	1	....	231	79
Germ. Luther	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
TOTAL	107	102	15	5	....	1	....	....	....	....	....	1	....	231	79
Dr. Griffin															
Henry	5	16	....	5	....	....	....	....	....	....	....	....	....	26	67
Spicer	28	30	....	12	....	....	....	....	....	....	1	....	1	72	97
St. Vincents	3	9	....	2	....	....	....	....	....	....	3	....	....	17	52
Perkins	12	15	....	16	....	....	....	....	....	....	....	....	....	43	39
Grace	20	22	....	9	....	....	....	....	....	....	....	....	....	51	75
TOTAL	68	92	....	44	....	....	....	....	....	....	4	....	1	209	330
GRAND TOTAL	856	1,089	91	288	6	67	78	3	4	5	17	12	138	2,654	1,050

* KEY TO DEFECTS

1. Adenoids and Tonsils
2. Teeth
3. Hearing
4. Eyes
5. Skin
6. Pediculosis
7. Glands
8. Nervous
9. Malnutrition
10. Orthopedic
11. Heart Disease
12. Mental Def.
13. Miscellaneous
14. Total
15. Normal

TABLE XXXI—Cont'd.

SUMMARY OF MONTHLY REPORTS
of
MEDICAL INSPECTION OF CHILDREN BY DISTRICT HEALTH PHYSICIANS
January–April, 1917.

Sheet 3—March

Physicians and Schools	Defects* 1	2	3	4	5	6	7	8	9	10	11	12	13	Total	Normal
Dr. Van Horn															
Findley	47	53	13	11	....	1	....	....	....	3	1	....	3	132	9
Caldwell	36	37	8	16	....	1	5	1	....	1	....	....	7	112	9
Jennings	36	49	16	21	2	....	8	1	....	....	1	....	13	147	14
Bryan	131	117	21	26	2	37	22	....	....	3	....	1	8	368	11
Forest Hill	6	7	1	1	....	....	....	....	....	....	....	....	....	15	....
TOTAL	256	263	59	75	4	39	35	2	....	7	2	1	31	774	43
Dr. Hogue															
Brittain	25	43	....	9	....	....	1	....	....	....	....	....	....	78	3
Goodyear	9	16	....	6	....	....	....	....	....	....	....	....	....	31	3
Kent	17	41	1	17	....	....	....	....	1	....	1	....	1	79	6
Mason	40	72	1	9	1	....	....	....	....	....	....	....	8	131	11
Robinson	52	90	1	14	....	....	....	....	3	2	1	....	3	166	19
TOTAL	143	262	3	55	1	....	1	....	4	2	2	....	12	485	42
Dr. Kent															
Lane	10	46	2	14	....	....	1	....	....	....	....	....	1	74	75
Triplett	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lincoln	11	26	....	5	....	....	....	....	....	....	....	....	....	42	36
Howe	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Oak Grove	6	33	2	15	....	....	1	....	....	1	....	....	2	60	63
TOTAL	27	105	4	34	....	....	2	....	....	1	....	....	3	176	174

Dr. Dunderman															
South High	11	2	....	4	....	....	....	....	....	....	1	....	1	19	22
Allen	40	....	....	9	....	....	....	....	....	....	....	....	....	49	31
Leggett	33	25	....	14	....	....	....	....	....	....	2	....	....	74	21
St. Mary	25	8	....	5	....	....	2	....	....	....	1	....	1	42	26
Miller	63	15	2	....	....	1	13	....	....	....	....	....	....	94	29
TOTAL	172	50	2	32	....	1	15	....	....	....	4	....	2	278	129
Dr. Tuholske															
West High	19	37	4	21	....	3	3	....	....	....	4	....	45	136	112
Bowen	28	83	1	14	....	18	6	....	....	....	1	....	27	178	49
Portage Path	8	24	....	3	....	1	3	....	....	....	....	....	5	44	54
Crosby	28	71	3	5	1	4	13	....	....	....	....	....	8	133	38
TOTAL	83	215	8	43	1	26	25	....	....	....	5	....	85	491	253
Dr. Smith															
Central High	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Fraunfelter	107	102	15	5	....	....	1	....	....	....	....	1	....	231	79
Germ. Luther	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
TOTAL	107	102	15	5	....	....	1	....	....	....	....	1	....	231	79
Dr. Griffin															
Henry	5	16	....	5	....	....	....	....	....	....	....	....	....	26	67
Spicer	28	30	....	12	....	....	1	....	....	....	....	....	1	72	97
St. Vincents	3	9	....	2	....	....	....	....	....	....	....	3	....	17	52
Perkins	12	15	....	16	....	....	....	....	....	....	....	....	....	43	39
Grace	20	22	....	9	....	....	....	....	....	....	....	....	....	51	75
TOTAL	68	92	....	44	....	....	1	....	....	....	....	3	1	209	330
GRAND TOTAL	856	1,089	91	288	6	66	80	2	4	10	13	5	134	2,644	1,050

* KEY TO DEFECTS

1. Adenoids and Tonsils
2. Teeth
3. Hearing
4. Eyes
5. Skin
6. Pediculosis
7. Glands
8. Nervous
9. Malnutrition
10. Orthopedic
11. Heart Disease
12. Mental Def.
13. Miscellaneous
14. Total
15. Normal

SUMMARY OF MONTHLY REPORTS
of
MEDICAL INSPECTION OF CHILDREN BY DISTRICT HEALTH PHYSICIANS
January–April, 1917.

Sheet 4—April

Physicians and Schools	Defects* 1	2	3	4	5	6	7	8	9	10	11	12	13	Total	Normal
Dr. Van Horn															
Findley	30	38	5	15	3	....	1	1	....	....	....	....	17	110	12
Caldwell	12	18	5	6	....	....	1	5	....	1	....	....	10	58	2
Jennings	41	72	10	23	1	....	3	1	....	1	....	....	12	164	9
Bryan	14	13	2	5	....	1	1	....	....	....	....	....	5	41	8
Forest Hill	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2
TOTAL	97	141	22	49	4	1	6	7	....	2	....	....	44	373	33
Dr. Hogue															
Brittain	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Goodyear	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Kent	18	33	3	7	....	....	3	....	....	....	....	....	9	73	13
Mason	11	20	....	3	....	....	....	....	....	....	2	....	8	44	5
Robinson	25	39	1	14	....	....	....	....	....	....	....	....	12	91	17
TOTAL	54	92	4	24	....	....	3	....	....	....	2	....	29	208	35
Dr. Kent															
Lane	14	71	....	12	....	....	....	....	....	2	1	....	....	100	61
Triplett	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lincoln	7	38	....	1	....	....	1	....	....	....	....	....	....	47	25
Howe	19	94	....	3	....	....	....	....	....	....	....	....	....	116	43
Oak Grove	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
TOTAL	40	203	....	16	....	....	1	....	....	2	1	....	....	263	129

Dr. Dunderman															
South High	10	25	1	9	....	....	....	....	....	....	2	....	1	48	19
Allen	16	51	....	5	....	....	....	....	....	....	....	....	2	74	23
Leggett	11	32	....	5	....	....	....	....	....	....	....	....	1	49	2
St. Mary	9	42	1	6	....	....	....	....	....	....	1	....	1	60	8
Miller	19	35	2	7	....	....	....	....	....	....	1	....	2	66	21
TOTAL	65	185	4	32	....	....	....	....	....	....	4	....	7	297	73
Dr. Tuholske															
West High	2	10	2	3	....	....	....	....	....	....	....	....	6	23	30
Bowen	5	10	....	2	....	4	4	....	....	....	....	....	3	28	7
Portage Path	3	13	....	....	....	....	3	....	....	....	....	....	1	20	13
Crosby	3	5	....	....	....	....	1	....	....	....	....	....	2	11	1
TOTAL	13	38	2	5	....	4	8	....	....	....	....	....	12	82	51
Dr. Smith															
Central High	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Fraunfelter	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Germ. Luther	10	4	1	2	....	....	2	....	....	....	....	....	....	19	47
TOTAL	10	4	1	2	....	....	2	....	....	....	....	....	....	19	47
Dr. Griffin															
Henry	1	1	....	....	....	....	....	....	....	....	....	....	1	3	47
Spicer	21	14	2	8	....	....	....	....	1	....	....	....	2	48	46
St. Vincents	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2
Perkins	13	4	1	2	....	....	....	....	....	....	....	....	....	20	31
Grace	1	1	....	1	....	....	....	....	....	....	....	....	....	3	11
TOTAL	36	20	3	11	....	....	....	....	1	....	....	....	3	74	137
GRAND TOTAL	315	683	36	139	4	5	20	7	1	4	7	....	95	1,316	505

* KEY TO DEFECTS

1. Adenoids and Tonsils
2. Teeth
3. Hearing
4. Eyes
5. Skin
6. Pediculosis
7. Glands
8. Nervous
9. Malnutrition
10. Orthopedic
11. Heart Disease
12. Mental Def.
13. Miscellaneous
14. Total
15. Normal

City of Akron
Department of Child Welfare

SUMMARY OF WORK
Akron Public Health Nurses*

For months of October, 1916, to June, 1917.
Assigned to Medical Inspection Service

	1916 October	November	December	1917 January	February	March	April	May	June	TOTAL
No. Clinical Insp.	7,505	7,641	6,133	7,635	6,786	9,338	6,987	10,171	3,190	65,386
No. Not Affected	723	726	642	467	634	541	227	351	365	4,676
No. Re-admitted	.....	.....	.....	.....	.....	1,082	690	1,604	206	3,582
No. New Pupils Insp.	.....	.....	.....	.....	.....	19	56	49	7	131
No. School Rooms Insp.	.....	.....	.....	8,245	3,466	453	514	229	.....	12,907
No. Cultures Taken	40	352	407	315	264	226	178	517	33	2,332
No. Physical Asst.	.....	.....	.....	.....	53	9	6	59	730	857
No. Health Talks or Drills	.....	.....	.....	.....	13	256	167	169	.....	605
EXCLUSIONS										
Diphtheria	.....	.....	2	3	8	1	1	2	.....	17
Diphtheria Carriers	58	82	27	9	14	3	2	17	2	214
Scarlet Fever	8	33	2	1	8	.....	.....	.....	.....	52
Scarlet Fever Cont.	.....	.....	2	.....	.....	.....	.....	1	24	27
Measles	1	3	1	7	9	62	77	238	17	415
Chickenpox	4	52	56	22	11	19	6	29	5	204
Whooping Cough	9	58	4	1	14	4	2	6	1	99
Mumps	24	24	12	31	28	73	60	56	10	318
Pul. Tbc.	5	1	.....	.....	.....	.....	1	2	1	10
Contg. Eye Dis.	7	11	10	15	21	95	50	86	7	302
Ringworm	12	9	.....	9	10	2	16	13	.....	71
Scabies	5	11	9	.....	1	3	.....	8	.....	37
Impetigo	104	11	3	.....	3	8	11	2	19	161
Pediculosis	152	151	342	63	151	84	62	69	8	1,082
Temperature	152	146	131	145	.....	103	97	289	16	1,079
Sore Throat	.....	.....	.....	20	.....	19	19	19	1	78
Miscellaneous	.....	.....	.....	2	10	133	99	135	15	394
OTHER DISEASES AND DEFECTS										
Adenoids	16	1	.....	1	.....	.....	.....	8	1	27
Tonsils	80	17	9	22	14	.....	174	396	5	717
Hyp. Cer. Glands	27	4	33	32	30	44	56	79	11	316

Teeth	469	234	103	105	107	130	303	373	78	1,902
Eye	257	318	100	314	290	455	329	388	58	2,509
Ear	76	170	111	158	120	158	132	174	26	1,125
Nose	13	.....	2	.....	10	15	18	4	.....	62
Orthopedic	2	.....	.....	.....	.....	.....	.....	.....	.....	2
Cardiac	17	1	.....	.....	3	.....	1	.....	.....	22
Nervous	13	1	.....	.....	.....	.....	.....	.....	.....	14
Skin	142	915	803	962	685	795	410	197	37	4,946
Goiter	.....	.....	.....	.....	.....	2	3	4	16	25
Miscellaneous	1,531	2,506	2,047	2,216	2,424	3,560	1,057	2,589	598	18,528
Dressings	2,453	3,068	2,442	1,647	1,677	1,959	655	3,063	1,553	18,517
Mental	.....	.....	.....	.....	.....	.....	.....	1	.....	1
CORRECTIONS										
Adenoids Removed	25	16	6	19	19	26	31	21	3	166
Tonsils Removed	28	27	48	30	12	73	45	23	3	289
Dental Corrections	80	195	476	463	157	789	317	226	35	2,738
Glasses Secured	37	40	80	66	55	153	52	44	2	529
Treatment Secured	215	106	42	76	47	52	42	83	5	668
Susp. Cont. Ref. to Health Dept.	.....	41	23	38	60	158	67	69	13	469
Ref. to Private M. D.	.....	133	133	134	129	193	177	154	36	1,089
Ref. to School M. D.	.....	.....	43	95	98	227	97	69	36	665
Ref. to Dentist	.....	.....	.....	58	48	39	146	130	20	441
Ref. to Oculist	.....	.....	.....	12	40	17	44	51	8	172
Ref. to Hospital	3	6	.....	.....	98	.....	.....	.....	1	108
Ref. to V. N. A.	.....	2	9	3	2	6	3	.....	.....	25
Ref. to Charity	.....	2	.....	.....	5	4	.....	.....	.....	11
Ref. to O. W. R.	19	7	8	24	.....	6	1	.....	.....	65
Conf. with School M. D.	.....	.....	.....	.....	.....	62	29	38	2	131
VISITS										
No. Schools Visited	36	36	36	36	36	36	36	36	36	36
To Homes	1,018	1,090	964	811	654	752	866	673	118	6,946
To Health Dept.	.....	.....	208	100	95	126	122	140	67	858
Miscellaneous	.....	212	85	66	124	152	89	157	46	931
TOTAL	1,018	1,302	1,257	977	873	1,030	1,077	970	231	8,735
No. of Baths	.....	.....	.....	.....	9	126	152	.....	.....	287

* This summary represents the work of 8 Nurses.

The ratio of the normal children observed to those showing defects is illuminating—in January, 568 to 3335; in February, 950 to 2655; in March, 1050 to 2644; and in April, 505 to 1316. The tremendous number of cases of adenoids should inspire inquiry into the effects of air vitiated by soot and dust.

From an educational standpoint the work with retarded children is particularly valuable. Akron is especially favored in having a physician especially assigned to this duty, with an assistant nurse. The general acquaintance of the teachers and the particular acquaintance of the principals with the Binet-Simon tests, gives an almost unique opportunity for fruitful co-operation between the physician and the teaching and supervisory staff. In the statistics above, reference is made to the special retardation survey which has been carried on for some months and Table XXXIII. which follows summarizes the results of the public school work of the medical officer in charge for the months of January, February, March and April, 1917.

SUMMARY OF MONTHLY REPORTS
re
MENTALLY DEFECTIVE CHILDREN
By Dr. Bradley, Special Examiner.

Table XXXIII.

January–April, 1917

SCHOOLS	No. of Schools Visited	Pupils Examined	Definitely F. M.	Probably F. M.	Border Line	Epileptics	Speech Def.	Adenoids and Tonsils	Referred to Normal	Referred to Probate Court	Referred to Physician
JANUARY											
St. Bernard		3	2	....	....	....	....	....	1	....	....
Lincoln		2	2	....	....	....	....	....	....	....	....
German Lutheran		13	8	3	....	....	....	....	2	....	....
Robinson		19	12	....	2	....	....	....	5	....	....
Allen		23	8	8	....	....	4	....	2	....	1
Miller		3	3	....	....	....	....	....	....	....	....
Goodyear Heights		2	2	....	....	....	....	....	....	....	....
TOTAL	7	65	37	11	2	....	4	....	10	....	1
FEBRUARY											
Lane		3	1	....	1	....	....	....	1	....	....
Fraunfelter		2	....	1	1	....	....	....	....	....	....
Bowen		36	12	10	....	....	2	1	11	....	....
Robinson		12	4	4	....	....	....	....	4	....	....
Grace		19	3	1	....	....	....	2	13	....	....
TOTAL	5	72	20	16	2	....	2	3	29	....	....
MARCH											
Mason		12	4	3	....	1	1	....	3	....	....
St. Mary's		5	1	2	....	....	....	....	2	....	....
Lincoln		5	3	1	....	....	1	....	....	....	....
Spicer		12	5	2	....	1	1	....	3	....	....
Bryan		4	4	....	....	....	....	....	....	....	....
TOTAL	5	38	17	8	....	2	3	....	8	....	....
APRIL											
German Lutheran		5	4	....	....	....	....	....	1	....	....
Lincoln		4	1	2	....	....	....	1	....	....	....
Leggett		3	3	....	....	....	....	....	....	....	....
Crosby		5	1	....	....	....	....	....	4	....	....
Bryan		16	14	1	....	....	....	....	1	....	....
Miller		20	10	4	....	....	....	....	6	....	....
TOTAL	6	53	33	7	....	....	....	1	12	....	....

N. B. The figure given for Normal children is given on the assumption that each column is an independent figure.

An excellent co-operative feature reported from the Bowen School is a Municipal Welfare Station for Babies, held in the school dispensary twice per week, with doctor and nurse in attendance. For one hour each school day a nurse is in attendance for consultation with mothers. **Similar arrangements should be made in every large elementary school center catering to a mixed population.**

XI. THE ACADEMIC AND PROFESSIONAL TRAINING OF TEACHERS IN THE AKRON SCHOOLS, THEIR WORKING DAY, THEIR PAY AND LENGTH OF SERVICE.

1. Training.

A careful tabulation has been made of the information supplied by the Superintendent as to the professional and academic training of the teachers now in service. Akron has no reason to be ashamed of the facts as presented in Table XXXIV which follows. It may be said that the excellent impression gained by the observer as to the personnel of the teaching force, its ability and devotion, was what might be expected taking into consideration the amount of time and money its members, on the whole, have invested in preparation for their life work.

TABLE XXXIV.

AMOUNT OF ACADEMIC AND PROFESSIONAL TRAINING OF TEACHERS IN AKRON.

(In addition, 117 teachers had college or university training.)

Length of Training	Elementary School Teachers	Elementary Principals	High School Teachers	High School Principals	Normal School Teachers
4 Years in High School	429	22	109	3	3
3 Years in High School	8	....	....	....	....
2 Years in High School	1	....	....	....	....
1 Year in High School	1	....	....	....	....
No Years in High School	....	....	....	....	....
4 Years Professional	1	1	13	....	....
3 Years Professional	9	....	2	....	1
2 Years Professional	247	8	22	1	2
1 Year Professional	103	4	8	....	....
Less than One Year Professional	27	....	2	....	....
No Years Professional	52	9	62	2	....

The Akron Board of Education maintains a Normal School which has trained 14% of the present teaching force. There can be no fear of inbreeding while this percentage is maintained. The observer spent sufficient time in the class-rooms of the Normal School to convince him that work of real value was being done. The outstanding feature of the work was its intensiveness. This is rendered possible by the comparative smallness of the enrollment and the opportunities for substituting afforded the Senior Class. The same methods for developing pupil initiative and resourcefulness were being used in the Normal School as in the grades and the High Schools. One excellent lesson along this line was observed in which the pupil teachers developed for themselves in conference an outline for a lesson in liquid measure.

It is unlikely, in view of the immense amount of substituting done by senior pupils—who on the average should be the most satisfactory substitutes available—that the Normal School costs the tax-payers any appreciable amount annually. At the same time it would seem clear that the city should receive State assistance toward paying the salaries of the teachers.

There are two tentative suggestions that might be made in connection with the operation of the Normal School:

1. That arrangements might be worked out for a close affiliation with a department of education in the University by which broader and more varied courses might be offered in the Normal School and the staff and laboratory advantages of the Normal School might be made available to build up a strong department at the University;

2. That co-operative arrangements might be made with the Kent Normal School for the mutual loaning of teachers and transference of pupils for stated periods.

Table XXXV which follows sets forth the facts as to where the teachers of Akron received their training.

TABLE XXXV.

WHERE THE TEACHERS OF AKRON RECEIVED THEIR TRAINING.

TRAINING	Regular Elementary School Teachers		Special Elementary School Teachers		Elementary Principals		High School Teachers		High School Principals		Critic Teachers	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
ELEMENTARY												
In Akron	....	97	....	2	....	10	1	17	....	....	....	1
Elsewhere in Ohio	....	168	....	....	3	3	20	25	3	....	....	....
Elsewhere in U. S. A.	....	178	1	2	3	2	21	25	....	....	....	2
HIGH SCHOOL												
In Akron	....	94	....	2	....	10	1	18	....	....	....	1
Elsewhere in Ohio	....	161	....	....	3	3	20	25	3	....	....	....
Elsewhere in U. S. A.	....	178	1	2	3	2	21	24	....	....	....	2
PROFESSIONAL												
In Akron	....	61	....	1	....	2	....	4	....	....	....	1
Elsewhere in Ohio	....	199	....	....	2	4	4	9	1	....	....	....
Elsewhere in U. S. A.	....	173	1	2	2	7	13	20	....	....	....	2
Unknown	....	.....	....	1	2	2	25	34	2	....	....	....
UNKNOWN (All three)	....	.....	1	....	....	....	....	....	....	....	....	....
ALL THREE IN AKRON	....	61	....	1	....	....	....	....	....	....	....	....
ALL THREE IN OHIO	....	.....	....	....	....	1	....	....	....	....	....	....

2. The Working Day of Principals and Teachers.

The principals of schools other than "rural" schools were asked to prepare for the inquiry a statement as to the amount of time per week consumed in their various activities connected with school work. Replies were received from 24 principals. In many cases the time was not given for various miscellaneous activities, but the time accounted for averaged 39.5 hours per week—or 7.9 hours per school day—per principal. This time was divided as follows:

Class-room supervision	16.7 hours.
Instruction of exceptional children	6.9 hours.
Reports to Superintendent	.9 hours.
Clerical work connected with the school itself	3.4 hours.
Teachers' meetings	2.0 hours.
Parents' meetings	.3 hours.
Miscellaneous administrative routine	6.6 hours.
Other functions connected with school work	2.7 hours.
Total	39.5 hours.

As a matter of great interest, quotations from principals' reports as to miscellaneous activities are given below:

1. "Aside from school work, many calls are made upon the school for charitable and benevolent advertising and appeals of various kinds. The school occasionally prepares an entertainment of considerable merit which necessarily requires considerable time during some weeks."
2. "Interviews with teachers individually and with pupils. Visits to homes."
3. "Conferences with teachers, pupils delinquent in work or conduct, looking over lesson plans, signing excuses of absentees, investigating causes of tardiness and absence, looking after transfers, calling at homes, interviewing parents, supervising playgrounds."
4. "Visiting homes for the purpose of knowing the home environment of the pupils and establishing a better understanding between parents and teachers."
5. "Binet-Simon testing."
6. "Checking up supplies."

These miscellaneous activities include work of the very greatest importance to the community.

The working week of the teachers in these 24 schools averaged 38.9 hours—or 7.8 hours per school day. The average teacher's week was divided as follows:

Class-room teaching	23.6 hours.
Instruction of individual children	4.0 hours.
Making reports	1.0 hours.
Other clerical work	1.8 hours.
Preparation of lessons	5.2 hours.
Parents' meetings	.3 hours.
Other work connected with schools	3.0 hours.
Total	38.9 hours.

No indications were seen by the writer that any principal or teacher was not giving of their best in the community's service. Many outstanding instances were observed of unusual devotion to duty and to the profession.

3. How Akron Teachers are Paid.

The minimum salary paid regular elementary school teachers in Akron is $550 and the maximum $1000. The average salary is $813.81 and the median salary is $800. More elementary teachers receive $950 per annum than any other sum.

The following table gives the median salaries for 11 cities:

San Francisco	$1200
Boston	1176
Chicago	1175
St. Louis	1032
Minneapolis	1000
Cincinnati	1000
Newark	1000
Philadelphia	900
Cleveland	900
Milwaukee	876
AKRON	800

It should be remembered that Akron has to compete with some of these cities for teachers. Living is no cheaper in Akron than in most cities on the list and Akron teachers have no easier work. That Akron is a smaller city is beside the mark. The most progressive smaller communities have established rates of pay as high or higher than those of large cities. In the long run a city gets what it pays for. An increased cost of living and a stationary salary schedule in the end is bound to affect disastrously the efficiency of any school system.

An indirect result of the salary schedule in Akron is the entire elimination of the male teacher from the regular grade work. This is undoubtedly a weakness. In after-school life, the masculine element and the masculine way of looking at things are of equal importance to the feminine element and point of view.

In the home at present the father is often a silent partner and at best the waking time he spends at home is but a small fraction of his day. If men are also to be banished from the elementary schools the effect on the all-round development of individual and of national life cannot fail to be serious. This has always been the case where nature has been thrown out of balance.

The highest salary paid to female special teachers in the grades is $1400, the lowest $600, and the average $1025. To male special teachers the highest salary paid is $1600, the lowest $1000, and the average $1300.

The lowest salary paid to a woman elementary school principal is $1050, the highest $1500, the average $1440, and the mode $1500.

The lowest salary paid to a male elementary school principal is $1500, the highest $2220, the average $1666.66, the median $1600, and the mode $1600.

The following table gives the median salaries for elementary school principals in 11 cities:

Boston	$3300
Chicago	2800
Newark	2600
St. Louis	2500
Cincinnati	2200
Milwaukee	1980
San Francisco	1800
Philadelphia	1600
Minneapolis	1600
Cleveland	1560
AKRON:	
Women Principals (mode)	1500
Male Principals	1600
All Principals	1500

For High School teachers the facts are as follows:

	Female.	Male.
Median Salary	$1200.00	$1250.00
Average	1164.18	1282.14
Mode	1350.00	1500.00
Minimum	800.00	1000.00
Maximum	1500.00	1500.00

Below is a list giving median salaries for 11 cities:

Newark	$1900
San Francisco	1680
Boston	1620
Chicago	1600
St. Louis	1520
Cleveland	1500
Philadelphia	1400
Minneapolis	1400
Cincinnati	1300
Milwaukee	1260
AKRON:	
Female Teachers	1200
Male Teachers	1250
Both	1250

It will be noted that Akron stands relatively better with regard to the pay of its High School teachers than of its Elementary School teachers. The investment in time and money necessary to obtain training fitting a man or woman for High School training should, however, be taken into account, as well as the financial rewards of other occupations for which an equal investment might have fitted them.

There are no women High School principals. The lowest salary paid to a High School principal is $2500, the maximum $3000, and the average $2766.66.

On the following page is given a distribution table (XXXVI) showing how many teachers in the various kinds of school receive the various rates of salary in the Akron schedule.

TABLE XXXVI.

DISTRIBUTION TABLE RE TEACHERS' SALARIES.

SALARIES	Regular Elementary School Teachers		Special Elementary School Teachers		Elementary Principals		High School Teachers		High School Principals		Normal School (Critic) Teachers		TOTAL
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
$ 500-$ 599	....	1	....	....	....	....	....	....	....	....	....	....	1
$ 600-$ 699	....	65	....	1	....	....	....	....	....	....	....	....	66
$ 700-$ 799	....	102	....	....	....	....	....	....	....	....	....	....	102
$ 800-$ 899	....	96	....	....	....	....	....	4	....	....	....	....	100
$ 900-$ 999	....	165	....	....	....	....	....	6	....	....	....	....	171
$1,000-$1,099	....	2	1	1	....	1	8	14	....	....	....	....	27
$1,100-$1,199	....	....	....	1	....	....	6	5	....	....	....	2	14
$1,200-$1,299	....	....	....	....	....	....	7	11	....	....	....	1	19
$1,300-$1,399	....	....	....	....	....	3	4	26	....	....	....	....	33
$1,400-$1,499	....	....	....	1	....	1	4	....	....	....	....	....	6
$1,500-$1,599	....	....	....	....	2	11	13	1	....	....	....	....	27
$1,600-$1,699	....	....	1	....	3	....	....	....	....	....	....	....	4
$2,200-$2,299	....	....	....	....	1	....	....	....	....	....	....	....	1
$2,500-$2,599	....	....	....	....	....	....	....	....	1	....	....	....	1
$2,800-$2,899	....	....	....	....	....	....	....	....	1	....	....	....	1
$3,000-$3,099	....	....	....	....	....	....	....	....	1	....	....	....	1
Unknown	....	2	....	....	....	....	....	....	....	....	....	....	2
	0	433	2	4	6	16	42	67	3	0	0	3	576

This table is much more illuminating than any statement of averages could be. Each teacher's case is an individual case. The average may not represent one single individual case. For example, if three teachers get $500 each and another one gets $2000, the average salary is $875. If $875 were a living wage, the average would seem to indicate that a living wage was being paid to these teachers, while, as a matter of fact, one teacher would be getting more than the living wage and the other three less.

The question that presents itself at this point is: How many teachers in Akron are getting a living wage or more, and how many are getting less than a living wage under Akron conditions? It is suggested that a Joint Committee of the Board of Education, the Chamber of Commerce and the supervisory and teaching force of Akron, conduct a thorough investigation to determine:

1st—A living wage for teachers, taking into consideration the demands made upon teachers;

2nd—The relative financial rewards for teaching; for work in Akron establishments demanding training equal to that of teachers; for work in Akron establishments requiring less training than that demanded of teachers;

3rd—A schedule of salaries for Akron teachers based on the facts discovered.

In this connection the following figures from the Report of the Cleveland Educational Survey are illuminating:

Annual Wages of Artisans in Cleveland.

Plumbers	$1219
Bricklayers	1192
Plasterers	1132
Painters	1003
Carpenters	992
Molders	945
Machinists	875

Out of 433 Elementary School teachers in Akron:

168 receive considerably less than a machinist
264 receive considerably less than a molder
264 receive considerably less than a carpenter
431 receive considerably less than a painter

and not one received as much as a plasterer, a bricklayer or a plumber. Similar figures should be compiled for Akron, including all trades typical of Akron industries.

In Evanston, Illinois, the Acting Superintendent of Schools and a committee of teachers have just completed a study of living costs and of methods of teacher promotion based on merit as well as seniority. They have just reported to the Board of Education recommending a salary schedule consonant with conditions in Evanston.

4. Length of Service of Teachers.

The study of the length of service of teachers in Akron gave an extremely clear notion of the growth of the system in recent years. This was an entirely unexpected by-product. The task of securing efficient teachers for the new classes opened annually must be tremendous and would be even more serious without the local Normal School.

Of the 52 men and 524 women teachers on the list submitted, 33 men and 294 women have been appointed since 1911 and 42 men and 413 women since 1905. Only 56 teachers now in service—6 of them men—came into the system prior to 1902.

Table XXXVII which follows shows the dates of appointment of the teachers and principals in the various types of schools.

Desk School | **DRAWING OUTLINE GIVING SUBJECTS, TIME, MATERIALS AND REQUIRED RESULTS** | **Grades 1-8**

Second Semester, January, 1917

GRADES	SUBJECT AND MATERIALS	TIME	RESULTS	SUBJECT AND MATERIALS	TIME	RESULTS	SUBJECT AND MATERIALS	TIME	RESULTS	SUBJECT AND MATERIALS	TIME	RESULTS
1	1. Freehand Munsell Crayons White Chalk Bradley's Gray 9"x12"	3 weeks 3:20 alt. 2:20	2 sets	2. Picture Posters Manila 9"x12" or } for cuttings old result sheets } Tints 14-16-19-17a-15a No. 11, 12"x18"; No. 2, 20"x24" Primary Drawing Paper, 9"x12" and Gray, White or Manila 9"x12" for mounting individual posters Choice of white, gray, steel, brown, olive, black mounting boards 20"x30" (See 2nd Grade)	6 weeks 5:10 per week or 3:20 alt. 2:20	See paper on Picture Posters	3. Design and Color Pages for booklet, Bogus 9"x12" White, gray, manila or primary drawing, 4 hues 9"x12" for applications Munsell Crayons	5 weeks 5:10 per week or 3:20 alt. 2:20	All finished work	4. Nature Rough Gray 9"x12" } Mounting Warm Gray 9"x12" } in 1-A Use 6"x9" gray for drawings until consumed then use Bradley's gray 9"x12" Munsell Crayons Use 9x12" white, gray or manila for cutting Use 12x18" black or any dark background for the mounting of flower arrangements	5 weeks 5:10 per week or 3:20 alt. 2:20	1 set drawings mounted and all class arr. of flowers
2	1. Freehand Munsell Crayons White Chalk Bradley's Gray 9"x12"	3 weeks 3:20 alt. 2:20	2 sets	2. Picture Posters All colored papers must be used with the greatest economy and as directed above under Grade 1.	6 weeks 5:10 per week or 3:20 alt. 2:20	See paper on Picture Posters	3. Design and Color Pages for booklet, Bogus 9"x12" White, gray, manila or primary drawing, 4 hues 9"x12" for applications Munsell Crayons	5 weeks 5:10 per week or 3:20 alt. 2:20	All finished work	4. Nature Rough Gray 9"x12" } Mounting Warm Gray 9"x12" } in 1-A Use 6"x9" gray for drawings until consumed then use Bradley's gray 9"x12" Munsell Crayons Use 9x12" white, gray or manila for cutting Use 12x18" black or any dark background for the mounting of flower arrangements	5 weeks 5:10 per week or 3:20 alt. 2:20	1 set drawings mounted and all class arr. of flowers
3	1. Freehand Munsell Crayons White Chalk Bradley's Gray 9"x12"	6 weeks 5:15 per week	2 sets	2. Design and Color Pages for the booklet, Bogus 9"x12" White, gray, manila or primary drawing, 4 hues 9"x12" for applications Munsell Crayons Newspaper for cutting designs	8 weeks 5:15 per week	All finished work	3. Nature Rough Gray 9"x12" } Mounting Warm Gray 9"x12" } Gray 6"x9" for drawings Munsell Crayons See Nature Grade 1 for cutting and mounting	5 weeks 5:15 per week	1 set drawings mounted and all class arr. of flowers			
4	1. Freehand Manila 9"x12" or Bradley's Gray 9"x12" Soft Pencils	4 weeks 3:30 alt. 2:30	2 sets: One in horizontal rectangle; one in vertical	2 Design and Color Pages for the booklet, Bogus 9"x12" White, gray, manila or primary drawing, 4 hues 9"x12" for applications Munsell Crayons Newspaper for cutting designs	5 weeks 3:30 alt. 2:30	All finished work	3. Costume Design Manila 9"x12" for dolls Any of the engine colored papers for costumes Also the tinted construction paper which the supervisors will assign in each building	5 weeks 3:30 alt. 2:30	All finished work	4. Nature Rough Gray 9"x12" } Mounting Warm Gray 9"x12" } Gray 6"x9" for drawings until consumed then use Bradley's gray 9"x12" Munsell Crayons	5 weeks 3:30 alt. 2:30	2 sets mounted
5	1. Freehand Manila 9"x12" or Bradley's Gray 9"x12" Soft Pencils	4 weeks 3:30 alt. 2:30	1 set illustrating principles taught	2. Working Drawings White 9"x12" Hard Pencils	5 weeks 3:30 alt. 2:30	2 sets: One from objects, one from appearance	3. Design and Color Pages for booklet Bogus 9"x12" White, gray or manila 9"x12" for applications Newspaper for cutting designs Munsell Crayons	5 weeks 3:30 alt. 2:30	All finished work	4. Nature Rough Gray 9"x12" } Mounting Warm Gray 9"x12" } Gray 6"x9" for drawings until consumed then use Bradley's gray 9"x12" Munsell Crayons	5 weeks 3:30 alt. 2:30	2 sets mounted
6	1. Freehand Manila 9"x12" or Bradley's Gray 9"x12"	4 weeks 3:30 alt. 2:30	1 set illustrating principles taught	2 Working Drawings White 9"x12" Hard Pencils	5 weeks 3:30 alt. 2:30	3 sets: One from objects, one from appearance, one from specifications	3. Design and Color Pages for booklet Bogus 9"x12" White, gray or manila 9"x12" for applications Newspaper for cutting designs	5 weeks 3:30 alt. 2:30	All finished work	4 Nature Rough Gray 9"x12" } Mounting Warm Gray 9"x12" } Gray 6"x9" for drawings Munsell Crayons Soft Pencils	5 weeks 3:30 alt. 2:30	2 sets—one in pencil, one in color mounted
7	Physiology	5 weeks		1. Freehand Drawing, Lettering and Poster Any of the 12"x18" tinted construction paper in stock and 12"x18" heavy manila White 9" x 12", ½" and ¼" gray squared 9"x12"	7 weeks 3:30 alt. 2:30	One original poster from each child	2 Color and Design Munsell Crayons 9"x12" white, gray or manila	7 weeks 3:30 alt. 2:30	All finished work			
8	Physiology	5 weeks		1. Freehand Drawing, Lettering and Poster Any of the 12"x18" tinted construction paper in stock and 12"x18" heavy manila. White 9" x 12", ½" and ¼" gray squared 9"x12"	7 weeks 3:30 alt. 2:30	One original poster from each child	2 Color and Design Munsell Crayons 9"x12" white, gray or manila	7 weeks 3:30 alt. 2:30	All finished work			

COMPARATIVE SCORES OF SCHOOL BUILDINGS

TABLE XVII-A.

	Perfect Score	High Schools: Central	High Schools: South	High Schools: West	Elementary Schools: Allen	Elementary Schools: Bowen	Elementary Schools: Brittain	Elementary Schools: Bryan Old	Elementary Schools: Bryan New	Elementary Schools: Caldwell Old	Elementary Schools: Caldwell New	Elementary Schools: Crosby	Elementary Schools: Forest Hill	Elementary Schools: F. H. Mason	Elementary Schools: Fraunfelter	Elementary Schools: Goodyear	Elementary Schools: Grace	Elementary Schools: Henry	Elementary Schools: Howe Old	Elementary Schools: Howe New	Elementary Schools: Jennings	Elementary Schools: Kent	Elementary Schools: Lane Old	Elementary Schools: Lane New	Elementary Schools: Liggett Old	Elementary Schools: Liggett New	Elementary Schools: Lincoln	Elementary Schools: Miller	Elementary Schools: Perkins Old	Elementary Schools: Perkins New	Elementary Schools: Portage Path	Elementary Schools: Robinson	Elementary Schools: Samuel Findley Old	Elementary Schools: Samuel Findley New	Elementary Schools: Spicer	Country Schools: Merriman	Country Schools: Lovers' Lane	Country Schools: Oak Grove	Country Schools: Triplett Old	Country Schools: Triplett New
1. LOCATION																																							
Perfect Score	15																																						
Made up of:																																						
Good Site	3	3	0	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	0	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3
Noise Conditions	3	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3	0	3	3	3	3	3	0	3	3	3	3	0	0	3	3	3	3	3	3	3	3	3	3
Dust or Smoke Conditions	3	3	3	3	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	0	3	3	0	3	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3
Accessibility	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Environment	3	3	0	3	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	(0)	3	3
Actual Score		15	9	15	6	9	12	15	15	15	15	15	15	12	15	15	12	15	12	12	15	9	12	12	15	15	15	9	12	12	15	9	15	15	15	15	15	12	15	15
Average								15		15								12					12		15				12				15						15	
2. GROUNDS																																							
Perfect Score	10																																						
Made up of:																																							
Adequacy	2	0	0	2	2	(0)	2	0	0	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	2	2	0	0	2	2	2	2	2	2	2	2	2
Surface Condition	2	2	2	2	2	(2)	2	0	0	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	0	0	2	2	2	2	2	2	0	2	2
Appearance	2	2	0	0	2	(0)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Apparatus	1	1	1	1	0	(0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Actual Score		8	6	8	6	(2)	6	2	2	6	6	6	6	6	6	6	6	6	4	4	6	6	4	4	4	4	6	6	4	4	6	6	6	6	8	6	6	4	6	6
Average								2		6								4					4		4				4				6						6	
3. STRUCTURAL CONDITIONS																																							
Perfect Score	20																																						
Made up of:																																							
Fire Hazard	5	5	5	5	0	5	0	0	5	0	5	0	5	5	0	0	0	0	0	5	5	0	0	5	0	5	5	0	0	0	5	5	0	5	0	0	0	0	0
State of Repair	5	0	5	5	0	5	0	0	5	0	5	0	5	5	5	5	5	0	5	5	0	0	0	0	5	0	5	0	0	0	5	5	0	0	5	0	0	5	0	5
Design	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	0	5	5	5	5	0	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5
Construction	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	0	5	5
Actual Score		15	20	20	10	15	10	10	20	10	15	10	20	20	15	10	15	15	5	20	15	10	10	20	10	20	10	10	5	10	20	15	10	15	10	10	5	15	5	15
Average								15		12.5								12.5					15		15				7.5				12.5						10	
4. HEATING AND VENTILATION																																							
Perfect Score	25																																						
Made up of:																																							
Adequacy of Plant	5	0	5	5	5	5		5	5	5	5	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	0	0					
Arrangement	5	5	5	5	0	5		5	5	0	0	5	5	5	5	0	5	5	0	5	5	5	5	5	5	5	5	0	5	5	5	5	5	0					
Intake Conditions	5	0	5	5	0	0		5	0	5	0	5	5	5	5	0	5	5	5	5	0	0	5	0	0	5	0	0	5	0	(0)	5	5	5	5				
Smoke Conditions	5	5	5	5	5	5		5	5	5	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5	0	5	0	5	5	(0)	0	5	5	5				
Operation	5	5	5	5	5	5		5	0	5	5	5	5	0	0	5	5	5	5	5	0	5	5	0	5	5	5	0	5	5	5	5	5	0	5				
Country Schools:																																							
Adequacy	15						15																												15	15	15	15	15
Arrangement	10						0																												10	5	5	5	10
Actual Score		15	25	25	15	20	15	25	15	20	15	25	25	20	15	20	20	25	20	15	15	20	15	20	25	10	20	15	10	20	15	20	25	15	15	25	20	20	20	25
Average								20		17.5								17.5					17.5		17.5				15				20						22.5	
5. SANITATION																																							
Perfect Score	30																																						
Made up of:																																							
Adequacy of Facilities	5	5	5	5	5	0		5	5	5	5	0	5	5	5	0	0	0	5	5	5	0	5	5	5	5	0	5	5	5	5	5	5	0					
Type	5	0	5	5	5	5		0	5	0	0	0	5	0	5	0	0	0	0	5	0	0	5	0	5	5	5	0	0	5	5	5	5	5	0				
Lighting	5	0	5	5	0	5		0	5	5	5	0	5	5	0	5	5	0	0	0	5	0	0	5	0	5	5	5	0	0	5	5	5	5	0				
Air Conditions	5	0	0	0	5	5		5	0	5	5	0	5	5	0	5	5	5	5	5	5	0	0	5	0	5	5	5	5	0	5	5	5	5	0				
Drainage	2	2	2	2	2	2		2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	0	2				
Drinking Water Facilities	3	3	3	3	3	3		3	3	0	0	3	0	3	3	3	3	3	0	0	3	3	3	3	3	3	0	0	3	3	3	0	3	3					
Appearance	5	5	5	5	5	5		5	5	5	5	5	5	5	5	0	5	5	0	0	5	5	5	5	5	5	5	0	0	5	5	5	5	5	0				
Country Schools:																																							
Adequacy	10						0																												10	0	10	0	0
Condition	10						10																												0	0	0	0	0
Drinking Water Facilities	10						0																												10	0	10	0	0
Actual Score		15	25	25	25	25	10	20	25	22	22	10	22	30	15	20	20	13	12	12	30	15	25	30	20	25	23	25	12	12	30	30	27	25	15	10	0	10	0	0
Average								22.5		22								12					27.5		22.5				12				26						0	